CQ

FEBRUARY
1953

RADIO AMATEURS' JOURNAL

FEATURE DX ISSUE

1953 LAZY KILOWATT
VERSED IN DX
CERTIFICATE SEEKER'S DIRECTORY
THE STORY OF RV2
EVOLUTION OF A 40-METER BEAM
THE DX MAN'S ZOO
THE Gs' POINT OF VIEW

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CQ RADIO AMATEURS' JOURNAL

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Feenix, Ari

Deer Hon Ed:

If Scratchi's signals you resently not heering, o if meloudious voice of Scratchi's haunting the ha bands you are missing, this is to letting you kno that your Hon. Receiver are still probably in 1/ shape—it are just that Scratchi have being co spickyewus by his absence on the air. Also, if yo are thinking that sum stewpendus thing to Scratch are happening, you are rite. I are not only withou ham license but are not daring to bootlegging. you can imagine Scratchi in that predickament And all this because I wanting to work sum re hots DX!

It all starting cupple weeks ago when I decidin that even though Hon. Sun Spots are making tuff for sum amchoors to working DX, that thi are not going to stop good old geenyus Scratch So, are selling car and investing many bux in hig power toobs, big transformers, eleventeen mile of wire and everything else needed to puttin rock-crusher whammer-bammer signal into all zone From all this I building sooper-dooper soope power rig. Talking about your California kilowha —Hah! I having Arizona kilowhat. Can't tellin you how much power I running to final (not wan ing to write anything discriminating) but drive stage using water-cooled toobs with air-cooling fan

After rig finished I putting up vee-beams, ro bics, long-wire arrays, and all kinds antennas poin ing every which-way. Having reel antenna far even though putting up stuff only on short te foot poles (not having any long ten foot poles Figuring that with power I using antennas n needing be too high off ground, but just high en so RF voltages not arcing backs to ground.

The first week Scratchi are using the Ro Crusher the results are sensayshunal. Wowie! How that signal were getting out—Hon. Ed., y wouldn't believing it. Sum of the DX I talkin to not believing it either—my signals so strong th think I bootlegging in there home town. (I thinkin of renaming the rig Old Limburger—what a sign it put out.) I even talking to amchoors what usi cristal sets for receivers. That are the life. Call 'e get 'em. Call 'em, get 'em. Boy oh boy.

It are just at this time that big catastrophy a happening to Feenix. We are having snow stor Maybe you not heering about it, as Chamber Commerce trying to keep it mum, but big sno we having anyway. When snow finally stopp snowing there are at least one inch on the groun When I seeing it I quick-like running to telyfo calling amchoor friend of mine named Mac,

(Continued on page 6)

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100-90S	90"	Threaded 3/8" Stud to fit all Mounts	5.20
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Model No.	Overall Length	Net Price
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8-72	72"	3.08
8-84	84"	3.13
8-86	86"	3.42
8-96	96"	3.55

No. 118

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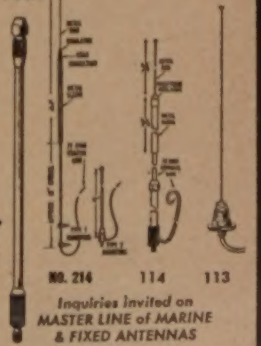
Series 106 Series 100



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(from page 4)

telling him he owing me a free lunch including strawberry shortcake for desert. He betting me I never using those snow tires I buying! Amidst all my merryment, I not realizing that the trap are closing on poor old Scratchi. Next day after snow I are knee-deeps in trubble.

I'll bet you thinking that FCC are getting wind of Old Limburger and seeing me about it? Nope, you are rong. Not the FCC. No indeedy. Ever heering of the FBI? Well, it NOT meening Fine Business Indeed. It all happening faster than hundred amp short circut. I are on air in shack when two fellows walked in, flashed sum badges, asked if I was Hashafisti Scratchi, found out I was, put me in there car, and whisked me to the nearest FBI office. Gracious to goodness, that are putting me in reel sweat, being clutched by FBI. Scratchi are old hand at visiting local jales here and there (in cases of mistaken identity or sumsuch thing), but when FBI cum after you it different matter. Sacremento! Just thinking of it again putting cold shivers up and down spine.

First thing happening are lots of questions. I are never knowing I knew so much about myself. When they got through they could have ritten biography of me with no trubble. Funny thing, tho, during all these questions I can't figuring out what I been doing rong. How can I confessing if not knowing what to confessing to? Certainly FBI not interested that I running measly hundred thousand whatts to final. In factly, I can't even seeing what they getting at when showing me a nice big fotograf. I can seeing it taken from airplane, and it showing big, fancy patterns in snow. Patterns are big arrows, sum figures that look like "22 miles" and sum other misterious numbers.

Howsomever, the more I looking at fotograf, the more familiar it looking. Sacremento!! Finally it cuming to me. It are fotograf of my antenna sistem! Yep, there are the rombic, there are three of the vee-beams. I telling this to FBI, but explaining I not sure till I see antennas again, so they rushing me out to ranch, tires screeching, sirens screeming. I going out to antennas and finally seeing what are so confusing. Under every piece of wire in antennas are ten-foot wide strip of bare earth where snow having been melted away. Evidentally are using so much power in final that RF from antenna melting snow on ground in nice patterns. Power loss in feeders also meening feeder lines melting nice figures in snow.

After explaining hole thing to FBI men, and they happy that I not doing anything rong, they telling me that pilot of commercial airplane noting pattern in snow, and seeing big arrow pointing to secrut government factory few miles away. Airplane pilot telling FBI he spotting spy in desert, so FBI rushing out to catching spy. Only not catching spy, catching Scratchi with too much power in antenna. Woosh! That were a close call!

FBI say they not going to tell FCC but they taking my license away for awhile, just for causing them so much trubble. Hon. Ed., you thinking I be in bad if FBI finding out that my license not valid, on acct. it already expired?

Respectively yours,

Hashafisti Scratchi

Guest Editorial . . . .

Regulatory Powers and the Amateur Radio Service

Commissioner GEORGE E. STERLING
Federal Communications Commission

By a strange coincidence it was one year ago that W3DF discussed on these very pages, the necessity of maintaining "Good Will" in handling TVI complaints. This year we are reprinting a portion of his talk before the New York Radio Club on December 8, 1952.

The particular portion that we selected concerns the reasons "why" the FCC now asks for individual opinions on proposed rules and regulations. Many Hams say, "Let's go back to the old days." Others say, "The FCC is trying to undermine the ARRL." Still others, we are ashamed to say, denounce the FCC without attempting to visualize the possibility that there is a second side to the question.

This other side does exist—keep it in mind and use it to the advantage—not the detriment of amateur radio.

—O. P. F.

Something has been added to the laws regulating all ernment agencies within the last six years whereby b and every individual, if he chooses, may make views known to the federal regulatory bodies when y find it necessary to make new rules or modify those s in existence and those regulatory bodies must give sideration to those views. This was done by Congress 1946 when it passed the **Administrative Procedure** . The stated purpose of the **Administrative Procedure** is significant. I quote it:

"To improve the administration of justice by prescribing fair administrative procedure."

s legislation was the outcome of thirteen years of ussion and controversy to enact some comprehensive ministrative procedure for federal regulatory agencies. analysis of the provisions of the Act reveals that restates certain general principles and requirements ch the courts in their review of administrative action erto imposed on agencies, or which some agencies the exercise of their own powers have pursued.

In all fairness it should be stated that before the sage of the **Administrative Procedure Act** the Federal mmunications Commission practice as it pertained to lication of rules, opinions and orders and making ilable public records were in substantial conformity the requirements of the new law.

Except possibly the requirement of publication of posed rules in the Federal Register, the other greatest irement of interest to the amateur fraternity is that ting to procedures. The Act in discussing the deposi- of comments on proposed rules states:

After notice required by this section, the agency shall afford interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity to present the same orally in any manner; and, after consideration of all relevant matter presented, the agency shall incorporate in any rules adopted a concise general statement of their basis and purpose.

So it can be clearly seen that each amateur regardless of age, race or sex is provided by law the opportunity to voice his or her views as it concerns any proposed rule making on the part of the Commission. This right imposes a responsibility. Amateurs or others must express their views either pro or con. This procedure makes it exceedingly important for those in favor of a proposal to speak their minds. For instance, should the majority favor and be silent and the minority oppose and be vocal, the Commission under this procedure would be forced to adopt the views of the minority unless there were sufficient reasons to the contrary.

"It has been interesting to follow the reactions of the amateur fraternity resulting from proposed rule making on the part of the Commission and the advantage they have taken to voice their approval or opposition to proposed rule making.

(Continued on page 65)

Photo Courtesy W2LRP

Present at the December 8th meeting of the New York Radio Club were, from left to right: W2VOU, W2ZE, W2KH, W3DF, George Sterling, FCC Commissioner; W2CYK, W2DW, W2BW, and W2ATT. At this meeting Commissioner Sterling presented an important address relating to FCC Administrative Procedure, pertinent sections of which are quoted in the adjoining text.

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3A-3 Receiver — Makes use of the new Collins echanical filter which represents an entirely w approach to the attainment of selectivity. The A-3 is a double conversion superheterodyne for p performance on the 160, 80, 40, 20, 15, 11 and meter bands. Only the band in use is shown on e slide rule dial — accurately calibrated directly 1/10 mc. Vernier zero set control is on front nel.

35C-2 Low-Pass Filter — Designed to reduce harmonic radiation. Can be used with any 52-ohm-output transmitter though especially built for use with Collins 32V-3 (left). 35C-2 has coaxial fittings to make installation easy. Provides about 75 db attentuation at television frequencies with an insertion loss of only .18 db. The filter's three sections are individually shielded and the use of low-loss capacitors insures excellent performance under all conditions.

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The 1953 Lazy Kilowatt

The original "Lazy Kilowatt" designed by W9IOP, served as a prototype for many of the power amplifiers used by our leading DX men. The new "1953 Lazy Kilowatt" has been completely modernized. It incorporates the variable vacuum capacitor tuning and single coil band changing from the front panel. The "1953 Lazy Kilowatt" can be duplicated in any average ham shack.

—Editor

LAWRENCE LeKASHMAN, W9IOP

c/o Electro-Voice, Inc., Buchanan, Michigan

Transmitter design for low-frequency operation is not violently susceptible to technological changes in the art. Yet, somewhat to the dismay of the amateur (and perhaps his family too) the rig to "end them all," in but a few years, is outmoded for one reason or another. Since the war this obsolence factor has been accelerated tenfold by TVI problems. Thus, the "Lazy Kilowatt," pride and joy of 1947, was due for a complete redesign, perhaps, even sooner than now.

Design Objectives

The objectives of the original "Lazy Kilowatt" design are still essentially the goal of this transmitter: A final amplifier capable of handling comfortably the legal power limit on all amateur bands through 10 meters. To this was added the desire for maximum flexibility without incurring complex circuitry, and cleanliness of design to minimize TVI. The considerably different looking power amplifier of the "1953 Lazy Kilowatt," is one approach to the design problem that has met and passed exhaustive tests.

Several general considerations should be pointed out. The electrical design is comparatively straightforward. While there is a wide divergence of opinion as to the relative merits of parallel vs push-pull operation . . . pi coupler finals vs. conventional LC . . . in practice the design previously used in the "Lazy Kilowatt" proved so trouble free that it was decided to retain the same basic circuitry. After all, most of the power amplifier modifications currently under review vary in degree only, and are not fundamental design innovations. The degree of mechanical complexity was kept as small as possible in order to permit duplication by the average amateur. There are no limits to what can be done with machine shop facilities, if available —this transmitter represents a compromise be

ween extremes. Certain items may have to be bricated in an outside shop, but not many.

Defining Flexibility

It is important to know what a piece of equipment will do before deciding to build it. The "1953 Lazy Kilowatt" will permit a cool kilowatt input from 3.5 to 30 Mc. Only the tank coil must be changed and this is done with a minimum of inconvenience through a front panel door. The final may be removed for servicing without undoing any screws or bolts other than those on the front panel. Power and antennas to the final amplifier are brought in using plugs for quick disconnect. The co-ax line is fed through the shield frame using one of the *Eimac* co-ax bushings. This bushing precludes the use of a co-ax connector, and if your local distributor doesn't handle *Eimac*, you can bend a clamp or use a connector. The important thing is to ground the co-ax shield where it passes through the shield frame.

All components that have a finite life, i.e., tubes, capacitors, etc., are of standard brands and widely available. There are no close tolerances to which one must adhere in construction. A diagram of the superstructure for supporting the tank coil and vacuum padder is illustrated; this is the only part calling for fairly close tolerances.

A word about the components selected. A kilowatt amplifier, if properly built, is not a "five and dime" project. The economy of sacrificing any design feature to cut cost is considered inadvisable. Thus, de-luxe features such as the special *Eimac* sockets, while initially costing more, can contribute a longer tube life, and in this manner amortize the slightly higher cost.

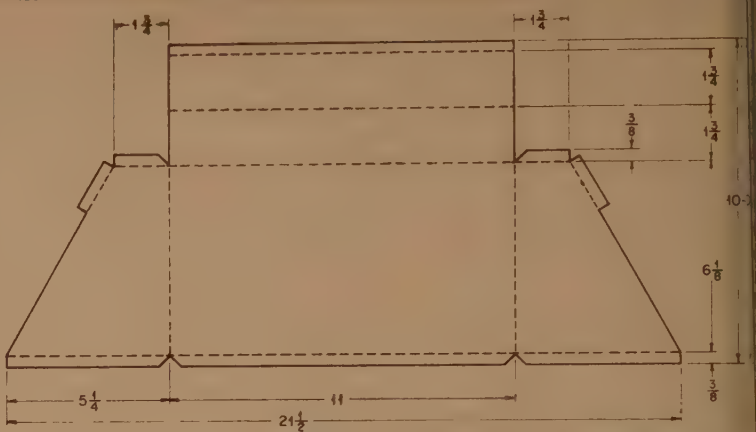
The most perplexing single problem in the transmitter design is that of fitting all the components on or into a single chassis. Overall chassis size limits are determined by the rack enclosure, in this instance a 13" x 17" x 5" deep chassis was absolutely essential to locate all the sub-mounted components. This is clearly shown in the photographs.

The amplifier deck houses, in addition to the power amplifier, the bias supply and filament supply. Normally, these components would present no space problem, but the addition of a TVI filter on every lead entering or leaving the chassis quickly consumes most of the open space.

Reasonable care in parts placement is the principal building precaution. The only sub-assembly requiring work is the super-structure supporting the tank coil and the 80-meter vacuum padder. Placing the face of the superstructure at an angle positions the tank coil for convenient handling through the front panel door. The vacuum padder is held by regular clips which are available at most jobbers for this purpose. To these clips are fastened 6" lengths of flexible braid terminating in regular Mueller No. 27 copper test clips. When operation on 80 is desired, the clips are secured to the tank coil mounting bar. Thus, a simple, virtually foolproof method of switching in the padder is available. When not in use, the clips are secured on the vacuum padder clip, ready for instantaneous use.

The r-f amplifier tubes selected for the final were *Eimac* 4-250A's. They were chosen because of the low driving power requirements of tetrodes, and the fact that their low grid-plate capacitance allows considerable simplification of the associated circuit and driver stage. Operating with 2500 volts on the plate, and a driving power of slightly more than 10 watts, a kilowatt is a modest load for a

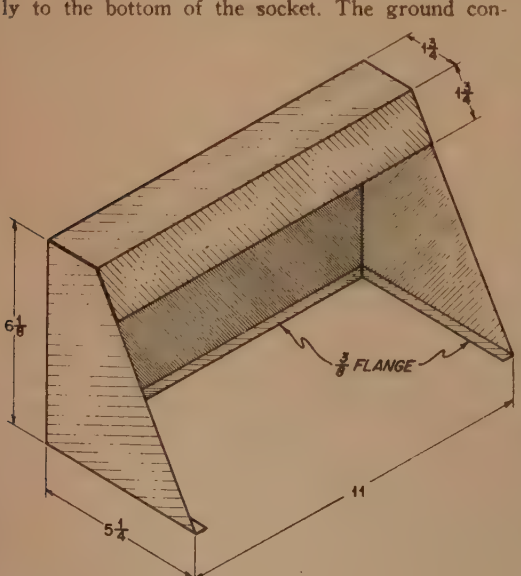
Bottom view of the 1953 Lazy Kilowatt. Of particular interest is the 2" Y carrying air from the blower to the air-sockets. To the left is the bias supply plate and filament transformer. On the right is the 4-250A filament transformer. The gear drive for the vacuum variable capacitors is just below the apex of the blower ducts. The components not easily identified by their appearance are the various filters for TVI protection. The grid tuning unit is brought out through the front panel using a Millen right-angle drive.



Superstructure for mounting plate coil assembly and vacuum padder. The material is 3/32" sheet metal. Dimensions should be held within ½".

pair of these tubes to handle.

In order to simplify the cooling problem of *Eimac* tetrodes and assure adequate air flow to the various seals, the *Eimac* air-system socket was developed. The air-system socket includes a socket to hold the tube and to make the necessary base connections, and a complete air cooling system. The air enters the bottom of the socket through a 2-inch duct, cools the base terminals and flows through the base of the tube. From there it is guided by the socket chimney past the glass envelope, and is directed against the heat dissipating connector at the plate terminal. A minimum quantity of air is used effectively to cool the tube adequately under the most severe requirements of the 4-250A ratings. The very fancy duct in the bottom of the chassis is constructed from two pieces of 2-inch copper pipe joined together in a "Y," feeding the blower. The bypass condensers for the filament leads and screen are fastened directly to the bottom of the socket. The ground connections are then secured to a strap formed as a broad "U," which, in turn, is grounded to the chassis.



The completed structure as shown here, is bolted to the chassis, and both units are painted to give a finished appearance. Naturally, all major mechanical work should be completed at this stage.

The grid circuit of the final amplifier employs the *National* type MB-40L multi-band tank. Designed specifically for use in grid circuits where the power input does not exceed 20 watts, it is more than adequate to take care of the pair of 4-250As. The tuning range is from 3.2 to 34 Mc. It is possible to tune any of these frequencies simply by turning the knob to the proper setting. No plug-in coils or even bandswitching is necessary. The input is in the form of an electrostatically shielded coupling coil. The shield is grounded to the capacitor frame and becomes grounded to the chassis when the capacitor frame is grounded. This assists in reducing capacity coupling at harmonic frequencies.

The main tuning control is a *Beckman* Model "W" Duodial, Type 15. Delivering a turn ratio of 15:1, it is just about ideal for an *Eimac* vacuum variable capacitor that has a tuning ratio of 17:1. The inner, or primary scale, shows directly the position of the condenser while the outer scale indicates one of the seventeen 360 degree turns to which it should be set. The Model "W" Duodial is designed for mounting on ½" -32 bushing. This means that since the dial is mounted directly on the front panel, a bushing to go through the chassis and front panel must be provided. For correct operation of the dial, the shaft and bushing extensions beyond the front of mounting panel must be within certain limits. Three special fiber washers, which may be inserted behind the panel to adjust the length, are supplied. Therefore, the bushing should be obtained slightly longer than the total thickness of the panels it must pierce. It should then be adjusted finally with the washers. This is important, because the operation of the Duodial is dependent on this panel bushing.

The tuning capacitor is the *Eimac* VVC2-60-2, a variable vacuum capacitor consisting of two single units in a gang mounting. A word about this type of capacitor is probably in order since they are relatively new in the ham field. The use of a vacuum for the dielectric permits close spacing

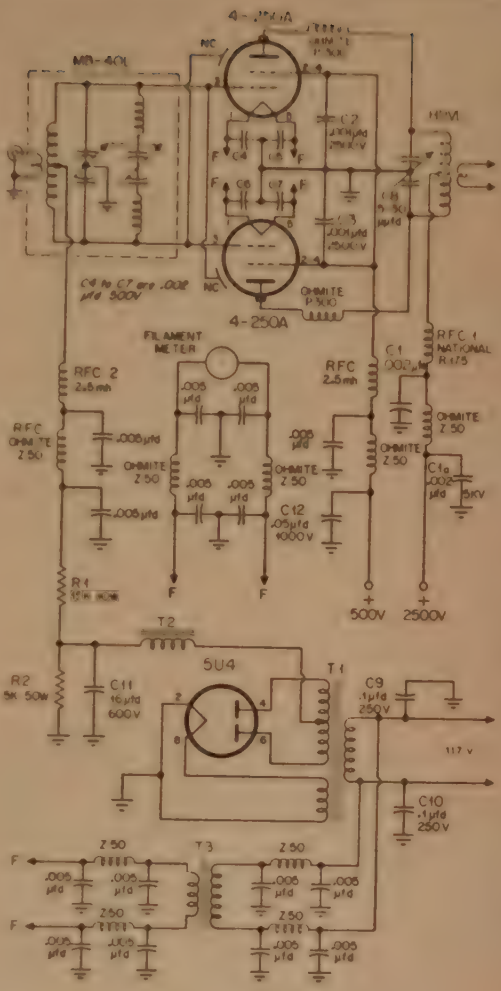
f the electrodes, permitting concentrated capacitance at high voltage. The basic capacitor unit has r.f. peak voltage of 20,000 volts — more than dequate for any amateur service. Multiple unit apacitors include a single mounting plate, gear ain, and a single tuning shaft. One end of each nit capacitor mounts on the common plate, and he end is free. Thus the multiple capacitor may e connected with the units in parallel, or as two eries capacitors for "split stator" work. The apacitance variation is linear with respect to haft rotation, the complete range being covered n seventeen revolutions of the shaft. A return o previously indexed settings is positive.

The VVC2-60-20 is employed in the "Lazy Kilowatt" in such a manner that one side of the apacitor is grounded. Thus, the mounting plate an be fastened directly to the chassis. Four eyelets o accommodate 8-32 machine screws are provided n the mounting plate. The other end of the capacitor is secured with two fuse-type clamps and onnected by copper straps to the coil jack bar.

An adjustable link control was not brought hrough the front panel because the particular equirements of our type of operation indicated ttle need for it. In other words, after using the ng for a short time, the setting of the adjustable nk becomes almost automatic. For varying power, has been my practice to generally raise or lower late voltage. For someone who desires to duplicate he "1953 Lazy Kilowatt" with a front panel ontrol for the link, it will be necessary to add a ight angle drive supported by a bracket on the hassis. Loading on all bands is adequate when sing a three turn link.

To facilitate changing the final amplifier plate oil, a door measuring 6 x 11 inches is cut from he front panel. It will take an extra panel to abricate the door, since the piece removed will olubly get pretty well chewed up. A little time nd patience will make possible a neat job on uminum panels. To prevent r.f. leakage around e opening, *Eimac* perforated contact finger ock is used. While designed initially as a means f making connections to properly constructed ubes, it is equally ideal for electrical "weatherrip." The top and sides of the opening use *Eimac* pe 17/32. The bottom piece, however, which is ghtly larger to cover the door hinge, is *Eimac* pe 31/32. The door hinge is a piece of piano nge, available at any hardware store.

Shielding, to provide protection against TVI, essential. There are innumerable ways of conructing a shield. In this instance, ¾ inch angle as welded together to form a box which fits over e top of the chassis. Small 4/32 bolts at frequent tervals secure the box to the front panel and assis. By countersinking flatheads and touching the heads with paint, a job can be done which is t objectionable in appearance. To provide access tube changes or simple servicing, the back of the ield is removable. The opening on the front nel, measuring 11 x 4 inches, directly before the



C1, C1a — 0.002 μfd. 5000v. mica

C2, C3 — 0.001 μfd., 2500v. mica

C4, C5, C6, C7—0.002 μfd., 500v. mica

C8 — 5-30 μμfd. split stator, Eimac VVC2-60-20

C9, C10 — 0.1 μfd., 250v. Sprague Hypass

C11—16 μfd., 600v.

C12—0.05 μfd., 1000v. Sprague Hypass

R1—15,000 ohms, 10w.

R2—5,000 ohms, 50w.

RFC1—National R-175

RFC2—2.5mh.

T1— —180v. bias, Chicago Transformer IBS-150

T2—bias filter reactor, 15h., 55 ma., Chicago Transformer RS-1555

T3—5v., 30 amp., Chicago Transformer F-530

Grid tuning unit — National MB-40L

Neutralizing tabs — 2" x 5/8"

Tube sockets — Eimac air system sockets

Final amplifier coil — B&W type HDVL

Base assembly and swinging link — B&W 3766

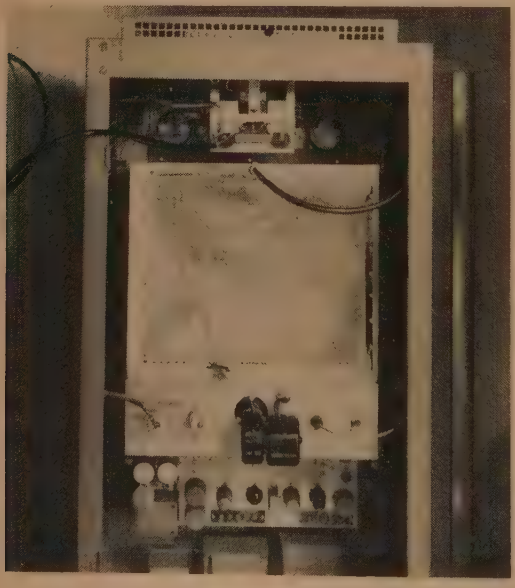
Also required are fifteen (15) 0.005 ufd. mica condensers and nine (9) Ohmite Z50 r-f chokes. These are not identified by parts number in the above diagram.

tubes, provides an observation point for the plates, is decorative, and also allows for additional ventilation. This is a piece of the same perforated metal used on the shield. Perforated steel was used because it would take plating (and plating facilities were available), although aluminum of this same character is available from local mill supply houses.

TVI

Filters on the a-c line feeding the bias supply, filament transformer and r-f filters are assembled from conventional components, observing present TVI reduction standards. To facilitate mounting, ⅛" brass sheet was cut up to support the filter components in the most convenient manner. Filter details are indicated on the circuit diagram.

South Bend, the home QTH, probably represents as poor a TV location as generally found. About 90 miles from Chicago, the principal source of local TV, the residents use thoroughly souped up, complex installations. On-the-air tests were conducted using a 136 ft. end-fed Zepp, one end on my 65 ft. TV tower, the other end on a neighbor's 65 ft. TV tower three houses away. W9JDS resides three houses away in the opposite direction, so a sympathetic and cooperative local test location is available. On 3.5 Mc. and 7 Mc., at 1 kilowatt input, there is no discernible trace of interference; On 14 Mc., at W9JDS, there is a trace of TVI when his TV antenna is pointed at my house; when pointed at Chicago, due west, there is no TVI. On the TV set of the non-amateur neighbor, there is no trace of TVI except when operating on 20. On this band there is serious channel 4 interference only. A few scattered complaints have come in from various parts of the neighborhood; however, without exception, a high-pass filter cleaned up the difficulty. It is difficult to pin-point any one factor contributing to the comparatively clean operation, but summing them up, the precautions incorporated include: shielding and filtering of all leads, vacuum variable tuning capacitors giving an extremely short path to ground for harmonics, and, of course, a TVI-proof exciter—the "Gold Plated Special."



Rear view of the 1953 Lazy Kilowatt. Snug is the ideal expression for the complete shielding job. The connectors on the chassis rear, from left to right, are a.c. input; filament and screen meter leads; a.c. input from the blower; high-voltage input; grid excitation input. Note that the meters are unshielded, the result of tests which proved this satisfactory. Directly below the final amplifier is a limiting and clipping amplifier for 'phone, and below this is the PA screen supply. The bottom shield of the amplifier is a piece of perforated metal secured with self-tapping screws every two inches.

Operation

Upon completion of the wiring, the circuit was double checked, and a-c power applied. Excitation was applied on each band and grid tuning function checked. Neutralization was performed on the highest operating frequency, 30 Mc., and rechecked on 3.5 Mc. Initial checks for neutralization were made with a standard commercial grid-dip oscillator, but after applying d.c., the "feel" of the tuning wasn't precisely right. A recheck of the neutralization with a sensitive laboratory quality *Measurements* g.d.o. confirmed our suspicion that the tubes were still out of neutralization. As in all power-sensitive high-gain tubes, stable operation demands careful neutralization. Using the *Measurements* instrument and following conventional procedure, the neutralizing tabs were easily adjusted to give apparently perfect neutralization.

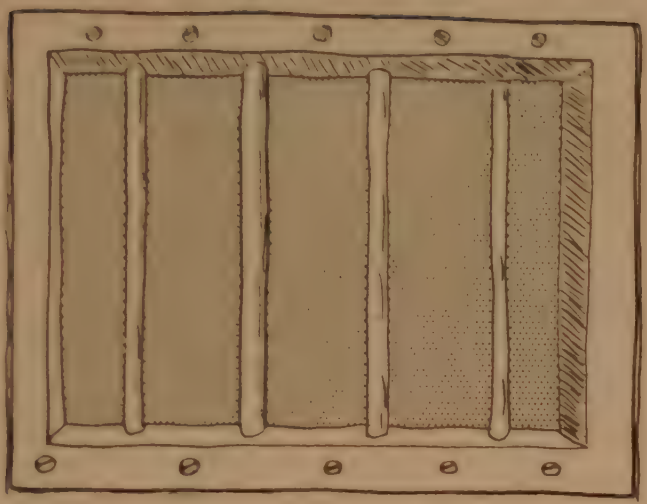
Ohmite P300 parasitic suppressors were placed in each 4-250A plate lead, simply because past experience had shown them to be important for completely stable operation. A reasonably positive indication that these suppressors are not overworking was the fact that the paper labels on the P300s have shown no discoloration after many grueling operating sessions on all bands.

With plate power applied, one of those all too infrequent occurrences resulted—normal operation was observed on all bands. No further "debugging" was required.

On-the-Air Performance

Nothing speaks more eloquently for an amateur's transmitter than his log. In the first week of operation, contacts were made on all bands with extremely good reports. WAC was made on both 7 and 14 Mc. Typical reports in Europe averaged S7 to S8. These contacts were made from one of the worst ham locations in continental United States (frankly admitted by all W9's) and would indicate performance to be normal or better.

Of added interest is the effect on u.h.f. television. WSBT (South Bend, channel 34) has been operating for several weeks, permitting a number of tests under varying conditions. In no case has there been any indication of interference . . . a good omen for all areas to be serviced with UHF TV.



THE DX MAN'S ZOO

For the 1951 ARRL National Convention DX Meetings, Larry LeKashman, W9IOP, and Herb Becker, W6QD, prepared a booklet called, "The DX-Man's Zoo."

So popular was this spoofing of that special breed called the DX-man, that we recently asked Larry to gather some new material for this "DX Feature Issue."

Obviously, any similarity between those pictured herein and our many DX-ers is coincidental and naturally, it is all in fun.

The photographs are from the C. Emerson Brown Collection at the American Museum of Photography, Philadelphia, Pennsylvania.

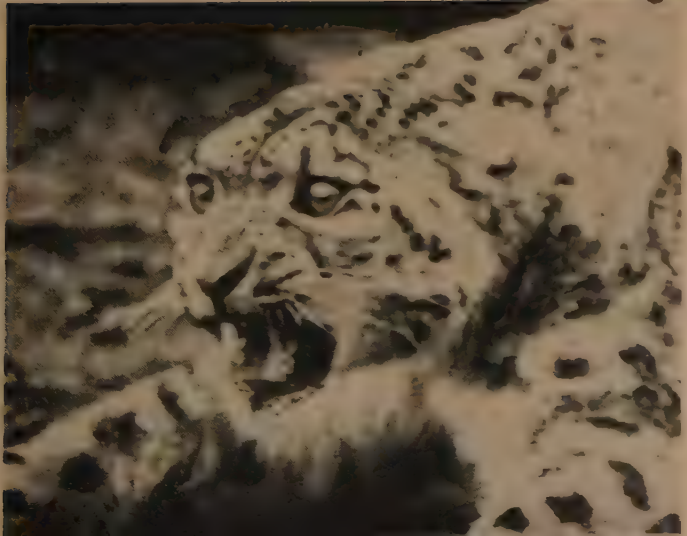
"CQ DX"

75-meter phone man hears that the Europeans are coming through.

"I know I owe you a QSL, but don't worry, I haven't forgotten."

"Gee, and I could'a sworn he came back to me."

Leading DX man modestly discusses his latest QSL's.



"Ready or not, your dinner's on the table!"

DX man emerging into sunshine.

"You know, I'm one of the biggest DX men!"

"Why didn't someone tell us about the Brunei expedition?"

Roland d'Assignies seated at the operating position of FO8AD, Rapa Island, 800 miles south of Tahiti.

The Story of *RV2*

M. ROLAND D'ASSIGNIES, RV2/FO8AD

Rapa Island, via Tahiti, EFO

Most amateurs have dreamed of living on a tropical island and being rare DX to the entire world. This is the story of one amateur who has realized that dream and is now FO8AD.—Editor.

The seed that was to produce RV2 almost a quarter of a century later was sown in France in 1923-4, during my training with the French Signal Corps. However, by 1939 this interlude in my life was just a memory. By then I was Sales Inspector for the British-American Tobacco Company, and my duties took me all over the South Pacific. When the war started I was in Tahiti, and was immediately inducted into the French Signal Corps.

My war service was in the jungles of French Indo-China. Our radio equipment was meager and mostly obsolete. It was amazing to be able to work 1200 miles through the jungle with a Hartley oscillator and a super-regenerative receiver. As the years in the jungle passed, it became my dream to retire to some remote Pacific isle to operate my own little radio station and live out my life in peace. I wanted no more war!

I was discharged from the Corps in 1946 in Tahiti, from where I had been inducted. The more I thought of the fighting that was still going on in Indo-China, the better I liked Tahiti. Finally, I made the most important decision of my life. I terminated my connection with B.A.T. and chose the lonely island of Raivavae in the Austral Group as my future home.

In preparation, I purchased an *Echophone* a-c/d-c receiver, a 6L6 tube, and as many small parts as possible, including a doorbell transformer. Most important, I obtained an *Onan* 500-watt, gasoline-powered generator and a provisional radio station license. My call was RV2, and I was authorized to operate a ten-watt station on 7 Mc. in order to transmit meteorological messages to the French Navy.

On Raivavae, I located eighty feet from a lagoon facing North America and set up my station. It was built around the 6L6 in a Hartley oscillator and the *Echophone* receiver. For the next seven months, I experimented with antennas and spent hours listening to amateurs on the 7- and 14-Mc bands.

CQ de RV2

Finally, on the night of Oct. 31, 1947, I got up courage enough to put my transmitter on 14 Mc. and call a very nervous CQ. When I finished, I listened on my own frequency, half hoping that no one had heard my call. Instead, I was positively frightened by what I heard. It seemed that everybody in the world was calling RV2! Hesitatingly, I answered W6VFR, the loudest and clearest station calling. Marv surprised me by speaking French, which helped to put me at my ease. At last I was truly a radio amateur! Since then, amateur radio has been the bright spot of my life. I still hold a weekly schedule with W6VFR when conditions permit.

RV2 Goes On Phone

Later, I was determined to go on phone. First, I had to construct a microphone. I filled a small can that had contained soluble coffee with crushed carbon from an old battery. Next, I made a diaphragm from a piece of tin, supported and insulated with a washer cut from an automobile tire inner tube.

I connected the microphone and two torch cells into the grid circuit of the 12SQ7 audio tube of the *Echophone* and put the bell transformer in the 50L6 plate circuit as a modulation transformer. This allowed me to modulate the 6L6 about fifty per cent, with eight watts of carrier power.

On 7 Mc., the phone signal was not too bad, but on 14 Mc., both quality and frequency modulation were terrible. Nevertheless, I managed to work many U.S.A. and other DX stations on phone. How they were able to understand me was always a source of amazement to me.

Some time later, I received a great surprise in the form of a package from W6SAI and W6VFR. It contained a beautiful, beautiful, thirty-five watt, crystal-controlled transmitter, complete with several crystals and a supply of spare parts. Immediately I put it on the air. What a thrill to have a T9X signal, instead of a T5 one that drifted hither and yon as the wind played with my antenna. Still, it was like breaking with an old love to discard the faithful Hartley, after all it had done for me.

Back To Papeete

Soon afterwards, I returned to Papeete and established a radio repair shop—not from choice, but one must live—and I was now the father of a new daughter. Between customers, I operated under my new call of FO8AD. Conditions were not very good, because my antenna location was not favorable, and the noise level was high from the sparking of electric motors on all sides of me. Still I managed to have many fine contacts.

FO8AD's two-section 8JK 14-Mc beam fed with a 115-foot feedline to keep it clear of Government antennas. The best DX is towards South America.

Two things that helped a lot were my good fortune of obtaining a tropicalized *HQ-120X* from U.S. Navy *surplus* and receiving a complete, two-section 8JK beam antenna from my W6 friends. But life in Papeete was not like on Raivavae. So, upon hearing that the French government wanted a radio operator and meteorological observer for a station to be established on the island of Rapa, 800 miles south of Tahiti, I immediately applied for the post. My application was accepted.

Radio To The Rescue

The journey to Rapa was almost disastrous. The motor in our boat failed on the open sea, and we were blown far off our course by high winds. I hooked up an *ATR* generator to the battery to power my little transmitter and called the Papeete Coast Guard for aid. They sent a plane to drop us food and water. Finally, we were blown and drifted to the island of Raiatea, which is northwest of Tahiti. From there, we were towed back to Papeete. Once repairs had been made, we set off again for Rapa, arriving, this time, without incident.

Rapa

Rapa is the farthest south of any island in French Oceania. Its exact location is latitude 27° South, and longitude 144° West. To me it is the most beautiful of the group. Also, its climate is cooler and less humid than Tahiti's. Oranges, perfumed bananas, coffee, vegetables, and the native fruit, taro, grow in large abundance. There are many coconut trees, but they seldom bear fruit. Raspberries are so plentiful as to be almost a menace.

The people are a mixture of Polynesian and almost any other race you care to mention. They are happy and cheerful and very superstitious. Many of their superstitions center around the twenty fortified mountain tops on the island. Who fortified them and for what purpose are real mysteries.

Every Saturday, there is a big dance, strictly chaperoned by the women of the village. The most popular dances are European, and music is supplied by guitars. The clergyman, a Polynesian, who lived for fifteen years in San Pedro, California, is an accomplished guitarist, specializing in American cowboy songs.

Supplies and mail reach Rapa three times a year on the small schooner, the *Fleur de l'Ocean*. Itinerant vessels also stop there occasionally.

My equipment on Rapa consists of three fifty-

(Continued on page 66)

The Evolution of a 40 Meter Beam

Figure 1. W9LM's two-element 7-Mc rotary beam described fully in the accompanying article. Sixty-seven feet from the ground, its trim, low-wind-resistance construction makes it hard to believe that each element is sixty-seven feet long. Work? More than one European amateur accused W9LM of being a bootlegger in Europe, because no 7-Mc. U.S. amateur could be that loud!

The Late HAROLD H. LEIGHTON, W9LM

To our knowledge, this is the first complete article on the design and construction of a forty-meter rotary beam to appear in an amateur publication. We doubt that rotary beams will ever exceed the number of doublets in use on forty meters; nevertheless, W9LM's results indicate that one has a definite place on the DX man's antenna farm—Editors.

The statement, "The antenna here is a rotary beam," does not create much of a stir on 14 and 28 Mc., but try it on 7 Mc. some time. The 7-Mc. antenna at W9LM *is* a two-element rotary beam! It is sixty-seven feet high, and each element is sixty-seven feet long!

The evolution of the array is a story in itself. My primary interest in amateur radio is working DX. For the 1948 DX tests, my 3.5- and 7-Mc antenna was a sixty-seven foot vertical, backed up by a 400-foot square, chicken wire, ground system. On 3.5 Mc., results with this antenna were excellent. On 7 Mc., they were disappointing.

In 1949, I used two sixty-seven foot verticals fed in or out of phase. On 7 Mc., they were obviously ½-wave long, while on 3.5 Mc., they acted as ¼-wave, top-loaded verticals, with maximum current at the tops of the elements. This combination slightly outperformed the previous antenna on 7 Mc., but was inferior to it on 3.5 Mc. This was rather surprising, because the 3.5-Mc angle of radiation should have been lower than from the previous antenna.

For the *1949 Field* Day, I put up a 3.5-Mc, ¼-wave, vertical antenna, with sixteen, ¼-wave radials forming a ground plane. It worked so well that I constructed a similar one for 7 Mc. This proved to be the best DX antenna to that date. Many DX contacts were made with it throughout the summer.

About this time, I discovered in an antenna handbook, a table showing the angle at which 7-Mc European signals were received on the East Coast. I believe it was originally published in the *Proceedings Of The I.R.E.* The table indicated that the signals arrived at angles between eleven and thirty-five degrees. Significantly, however, only one per cent of the time was the angle as low as eleven degrees.

Correlating this table with my experiences seemed to indicate that too low an angle of radia-

The manuscript for this article was received some eight months before the sudden and unexpected death of the author. We are pleased to publish this to perpetuate the memory of well-known and universally admired radio amateur.

tion for good DX results was possible on the 3.5- and 7-Mc amateur bands. The 7-Mc ½-wave verticals and the ¼-wave, top-loaded, 3.5-Mc verticals were just undershooting the DX. Conversely, the ¼-wave ground planes did a better job because of their radiation at higher angles.

I began thinking "horizontal." Having a sixty-foot telephone pole available, I could erect a horizontal doublet, ½-wave high. Such an antenna has its maximum radiation broadside to the element and vertically around thirty-two degrees, with considerable radiation down to and below twenty degrees.

I constructed a self-supporting, ½-wave element and hoisted it and a rotator to the top of the pole, in order to run some comparative tests between it and the ground plane. Both antennas were fed with RG-8/U cable; consequently, it was possible to switch instantaneously to either. Power input was 900 watts.

Comparing The Horizontal And The Vertical Antennas

Although fading characteristics were often different on the two antennas, there was little to choose between the vertical ground-plane and the ½-wave doublet for working DX. DX stations did usually report a difference of an *S*-unit or so in signal strength as the horizontal antenna was swung from broadside to put the end on them. On U.S.A. signals, however, directional effects were seldom noted.

After several months spent in comparing the two antennas and observing how the horizontal rode the winds, another sixty-seven foot element was assembled and spaced one-tenth of a wavelength from the radiator. Three lengths of RG-8/U in parallel were used to feed the beam. Without changing coupling to the final amplifier, input dropped to 600 watts with the beam, compared to 900 watts with the vertical.

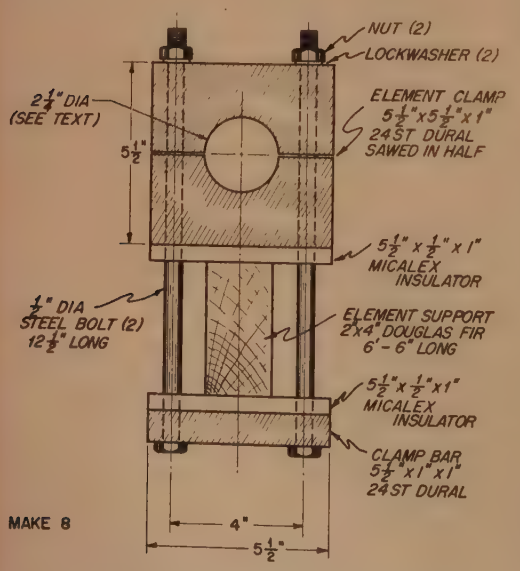


Fig. 2. End view of one of the element clamp assemblies. The text on the opposite page describes their construction in the home shop.

In spite of the power difference, DX reports invariably favored the beam. They varied from, "Signals are slightly louder with the beam," to "Signals more solid on the beam," to a scattering of reports, "Signals three *S*-units stronger with the beam." On receiving, every DX signal that could be heard using the vertical could be heard better with the beam. On the other hand, many signals, audible on the beam, were completely inaudible on the vertical.

I took down the 7-Mc vertical.

Constructing The Forty-Meter Beam

Beam elements are constructed of telescoped lengths of 24ST aluminum-alloy tubing and are each sixty-seven feet long. They are similar, except that the radiator is split in the center for connection to the feed line, while the parasitic element is unbroken. Measured sag at the ends of the elements is less than one foot.

Each half of the radiator consists of a nine-foot length of 2¼-inch tubing, with ⅛-inch walls, a twelve-foot length of two-inch tubing, with 1/16-inch walls, and a 14½-foot length of 1½-inch tubing, with 0.035-inch walls. The first six feet of the 1½-inch tubing is reinforced by another length of the same tubing. The reinforcing tube is split down one side on a circular saw, slipped over the other piece, and held in place with a hose clamp.

The various lengths of tubing are joined by splitting the larger-diameter tubing at one end for a distance of one foot with a hack saw, and telescoping the next-smaller diameter tubing into it. Shims are used where necessary to insure a firm fit. As many aircraft-type radiator hose clamps as will fit within the length of the slit are used at the joints to eliminate any possibility of them later working loose.

The parasitic element is constructed as above, except that its center section is a single, eighteen-foot length of the 2¼-inch tubing.

"No Oxide" compound, obtained from the *Aluminum Corporation of America,* is applied to the aluminum surfaces before joining, to inhibit corrosion and to insure good electrical contact. This compound is used for the same purpose on exposed switches and conductors in electrical power stations.

The hose clamps used throughout are cam-operated, aircraft-type, radiator hose clamps. They are obtainable in automobile supply houses and war surplus stores. I have used them for over six years in beam construction and have yet to have one fail.

Connections to the radiator are made by means of two six-inch lengths of thin brass tubing with an inside diameter of 2¼ inches. The tubing is split for a distance of an inch at one end. Then, it is cadmium plated, inside and out, and driven over the center ends of the radiator, split end first. Both the brass and aluminum were coated with *No Oxide.* A hose clamp around the split end

olds each brass sleeve in place. Feeder connections re made by soldering to the brass.

Mounting The Elements

Element supports are six and one-half foot engths of clear, selected, Douglas Fir, two inches vide and four inches high. The cross-section imensions are actual measurements, not nominal umber sizes, in which actual dimensions are ap reciably less.

Figure 2 illustrates the method of mounting the lements to the cross arms. Blocks of 24ST dural, ½ x 5½ x 1 inches, are bored horizontally to accommodate the elements and drilled vertically on four-inch centers to pass ¼-inch bolts. The blocks re then sawed in half across the holes. A piece f dural, 5½ x 1 x ¼ inches, and two pieces of micarta, 5½ x 1 x ⅛ inches, also drilled on four-inch centers for ¼-inch bolts, complete each clamp. Eight clamps are required.

A detail drawing of the construction of one side f one of the elements is shown in *Fig. 3*.

To mount the elements, slip a strip of dural and a trip of micarta over two, 12½ x ½-inch bolts. 'lace four of these assemblies in line on a flat surace. The outer pair should be six feet two inches part and the inner ones seven inches each side of center line. Center one of the Fir cross pieces n them. Then slip another piece of micarta and he bottom half of a bored block over each pair of olts. Lay an element in place, put the remaining alves of the blocks in place and tighten up with nut and lock washer on each bolt.

Space the halves of the radiator element; so here is a gap of 1½ inches in its center.

The holes in the inner dural blocks are bored o hold the elements firmly in place, but those in he outer pair are drilled a trifle oversize. This educes vibration in the elements by decreasing orsional stresses at the outer clamps under temerature changes and when the wind blows.

There is little r-f voltage near the center of a -wave element; therefore, the insulation proided by the micarta is more than adequate.

The Support And Rotator

An unguyed, seventy-five foot, class-two, telehone pole supports the array. It is about twelve ches in diameter at the base and tapers to six ches at the top. Between nine and ten feet of e pole are set in the ground, with 4½-cubic yards concrete poured in a three foot ring around it. 9LM is located in a low-lying area, and it is t unusual for the ground under the antenna to

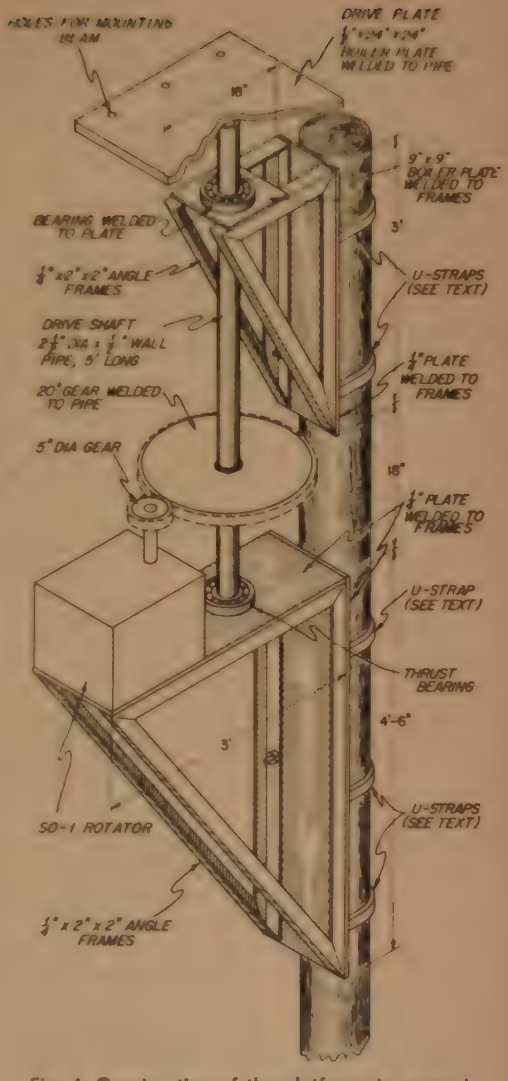


Fig. 4. Construction of the platforms to support the rotator, shaft bearings and drive shaft. All principal metal joints are welded.

be under a few inches of water for weeks at a time. The weight and area of the concrete has prevented any trouble from the resulting soft ground. In the more than three years the 7-Mc

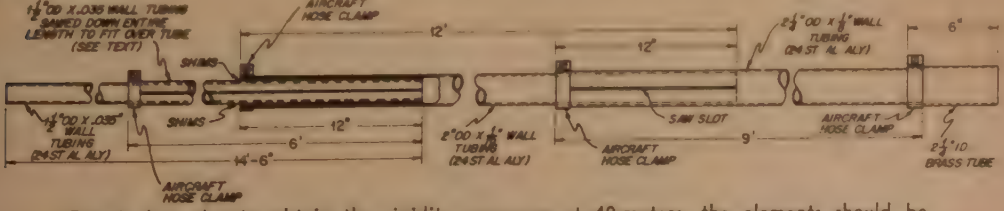


Fig. 3. In order to obtain the rigidity necessary at 40-meters, the elements should be constructed as shown above. This is one side of the radiator. The director/reflector does not have the six-inch brass tube at the right, but is continuous and unbroken.

beam has been up, it has withstood wind and sleet storms that have taken down many 14- and 28-Mc arrays, commercial radio towers and hundreds of miles of utility wires.

Rotation is accomplished with a *surplus SO-1* radar antenna rotator. The prongs originally used to support the radar antenna were removed and replaced with a gear. It is five inches in diameter and one inch thick. This gear meshes with another twenty-inch gear welded on the beam drive shaft.

A platform, 4½ feet from the top, supports the rotator. Another platform at the top of the pole supports the top bearing for the drive shaft. The drive shaft is a piece of pipe, five feet long and 2½ inches in diameter, with ½-inch walls.

Figure 4 gives details of the construction of the platforms. The shelf upon which the rotator and the shaft thrust bearing set is a three-foot piece of ¼-inch plate the width of the rotator. It is welded to a triangular frame constructed of 2 x 2 x ¼-inch angles, which extends down the pole for 4½ feet. Another ¼-inch plate, 4½ feet long, is welded across the vertical angles for maximum strength. The entire structure is fastened to the pole by means of three U straps bent from lengths of 1½ x ½-inch stock. Half-inch bolts, welded to the ends of the U's, join the U's to the platform.

The upper framework is similar to the lower one. It is nine inches wide and extends out from the pole 1½ feet and down it three feet. Two U-brackets are used to fasten the framework to the pole, and the bearing plate, which is nine inches square, is not welded across the top until later.

To prepare the drive shaft, weld a two-foot square of ½-inch boiler plate across the top of the 2½-inch diameter drive shaft. This plate will later support the beam. Slip the upper bearing, already welded in the center of a nine-inch square piece of boiler plate, over the shaft. Next, weld the twenty-inch gear, which is driven by the gear on the rotator, in a position to correspond with the latter gear. Completing the shaft is the rotating part of the thrust bearing at the bottom.

Assembling The Beam On Top Of The Pole

The metal pieces are quite heavy; therefore, they were pulled up individually with the aid of a block and tackle and a Jeep. (*See Fig. 5.*) After the platforms are in place and the rotator mounted, the drive shaft is pulled up. Once it is set truly vertical, with its gear meshed with the one on the rotator, the top bearing plate is welded into place and the thrust bearing bolted down.

Figure 5: This picture serves the dual purpose of showing the construction of the sixty-seven foot, self-supporting element and the method of getting the various components to the top of the telephone pole. Hal, W9LM, is driving the Jeep. John, W9APE, is perched on top of the pole, thirty feet above the top of the picture, waiting for the element to reach him.

The first step in assembling the beam itself is pulling up the two lengths of selected, Douglas Fir forming the boom. They are 14½ feet long and have a full 3 x 4-inch cross section. They are bolted edgewise to the plate welded on the drive shaft, using ½-inch bolts. Then, two-foot lengths of 1 x 12-inch lumber are temporarily nailed across the boom to make a floor safe to walk on.

An eighteen-inch spacer of ½-inch pipe is bolted between the 3 x 4's with a 25 x ½-inch bolt about a foot and a half from each end. The previously-assembled elements are then pulled up, and maneuvered into position, and bolted to the boom fourteen feet apart.

After the elements are in place, three RG-8/U cables in parallel are soldered to the radiator. Finally, the temporary "flooring" is removed from

Figure 6. When your taste runs to forty-meter roteries it helps when your house is the only one as far as the eye can see. The other antennas visible are ten- and twenty-meter roteries.

e boom, and the beam is completed

The net impedance of the parallelled RG-8/U ables closely matches the nominal impedance of two-element beam. Their length is made an inte- ral multiple of a half wavelength (Length (ft.) = 2/Freq. (Mc.) x 0.66); so that the same load presented to the transmitter as is present at e radiator.

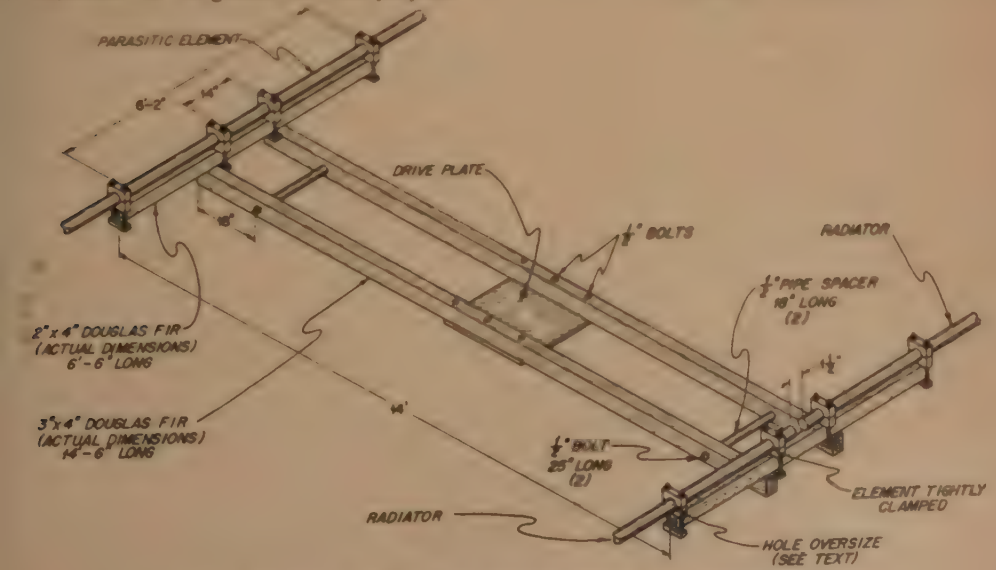
John Cotter, W9APE, did the work on the pole, hile I was the ground flunkey and drove the eep. It took John only two hours to assemble the eam on top of the pole, although it took somewhat nger to do the iron work. Of course, all holes ere already drilled, because the beam had been rst assembled on the ground for that purpose.

Results And Conclusions

Tests on the low-frequency end of the band with VK5JE and G5WI brought forth S8 reports on the nose and S3-4, but unreadable, reports from the ends and back of the beam. This indicates the beam's directivity on DX when transmitting. When used for receiving, directivity is about the same as that exhibited by a good two-element array on 14 Mc.

The array also exhibits fair directivity on U.S.A. signals around noon, but shows very little directivity on them in the early evening. Furthermore, it seems to reduce the strength of U.S.A: signals

(Continued on page 72)



Assembled drawing of the W9LM 40-meter rotary beam antenna. The parasitic element is quite responsive to frequency change. It reacts as director on the low end of the band and as a reflector on the high end of the band.

There is certainly nothing fancy or difficult in erecting a T2FD. This is the author's antenna. The peculiar photographic angle is due to the slope (coming towards the reader) of the antenna.

More on the T2FD

CAPT. G. L. COUNTRYMAN, U.S.N., W3HH

309 Windsor Street, Silver Spring, Maryland

While the average citizen walking down the street thinks and talks a lot about the weather, the average amateur radio operator is generally most concerned about his antenna. It, like another invaluable item, comes in an infinite variety and will probably never cease to attract interest and discussion.

About a year ago, CQ printed a little article on a type of folded dipole called the "T2FD." It was, in every sense of the word, a "sleeper." Those who put it up were amazed by its ability to load on three or more amateur bands. Others acclaimed its omni-directional properties, while a third group insisted that it radiated most of its energy at the most favorable vertical angles of radiation. Oddly enough, there still seemed to be some theory-bound skeptics who insisted that it couldn't work. For the benefit of those few, and for the fellows who haven't tried this unusual antenna, we append a few comments.—Editors.

"While looking for a compact antenna for my small backyard . . . I decided to give it a try.

"I put one up for 40 meters and the first night I worked all but the 6th district. Next night I thought I would see what would happen if I tried to load it on 80 meters. On first CQ I got a 579X report with only 40 watts input!"

W8IKB

"Saw your antenna just as I was about to put up the Zepp I use during the winter. Gave your plan preference and the next day . . . I casually asked for a report . . . and got 40 over S9 with doubts about my 450 watts. They said that the kilowatts were generally S6. This was on 75-meter phone.

"Next morning I tried 10-meters and heard more DX than on a beam at this location. In general, the T2FD surpasses anything I have used on 75-meter phone which included long wires up to 500 feet, center-fed and end-fed Zepps, and shortened center-fed Zepps with long feeders."

WØMIO

"I assisted VE1UL while erecting a T2FD and he found it to be one of the best antennas he had used."

VE1KQ

Several years ago the author experimented with a terminated, tilted, folded dipole that offered possibilities for ham use. The initial data appeared in *QST* for June 1949 on page 54. Apparently very few hams read the article, or, if they did, skimmed over it lightly. Certain communication services took it seriously, however, and the author continued to have excellent results with the system. Another article made its appearance in the November 1951 issue of *CQ*, and there is no doubt that this article was not only read, but that many brother hams went to the trouble of erecting a T2FD, and reporting its excellent performance.

Since then, more than a year has elapsed, and the mail continues to roll in. This article is now being published in self defense, as there is no time to answer the many letters. Most of these fall into two categories. First are the letters reporting excellent results with this "all-wave" omni-directional antenna. Next come the questions, and they all follow a general pattern. Here are the answers to the questions most frequently asked:

Question: Is the use of a non-inductive terminating resistor necessary?

Answer: No. However, if you use a wire wound resistor, the antenna is not aperiodic and will resonate at some frequency. The difference is that with a wire wound resistor it will be necessary to use some form of antenna coupler depending on your installation, and the coupling will probably be different for the various bands. With a non-inductive resistor the system is aperiodic and one coupling method will be satisfactory for all bands. This advantage is offset to some extent by the fact that the resistance value is fairly critical and it is convenient to adjust a wire-wound resistor with slider. Sprague makes a non-inductive "Kool-Ohm" in a 120 watt size that will handle an input to the final of 350 watts. Ribbon non-inductive terminating resistors in larger wattage ratings are still available, now and then, at surplus outlets.*

T2FD Basic Design Data

(See Fig. 4)

1. The length of each leg from the center is equal to 50,000 divided by the lowest desired operating frequency (in kc.) and then multiplied by 3.28. The answer is in feet.
2. The spacing between radiating wires is equal to 3000 divided by the lowest desired operating frequency (in Kc.) and then multiplied by 3.28. The answer is in feet.
3. The sloping angle for a nondirectional pattern should be of the order of 30 degrees.
4. The terminating resistor should be non-inductive and have a rating equal to 35% of the transmitter input power. For further details see the text.

Question: Must the resistor be exactly the same resistance as the feed line impedance?

Answer: No. The value of the resistor is quite critical for optimum results, especially as the impedance of the feeder decreases. For example, with a 600-ohm line (No. 12 wire spaced 6 inches), a value of about 650 ohms seems best although operationally a 600-ohm resistor appears to be entirely satisfactory. When using 300-ohm twin-lead, the optimum resistance is 390 ohms, which results in a tremendous gain, approximately 30 db, over a 300-ohm resistor, although any value from 375 to 400 ohms gives excellent operational results. With 450-ohm line, a 500-ohm terminating resistor will be satisfactory. With lines of lower impedance including coaxial cable, reports indicate that for optimum results the value of the resistor is critical within about 5 ohms, although the author has used only open lines and twin-lead in his work.

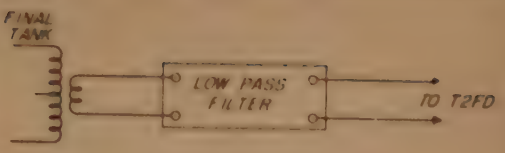


Fig. 1. The T2FD may be coupled to the final with a simple link. The use of a low-pass filter to prevent TVI is recommended.

Question: Is the antenna equally good on receiving and transmitting?

Answer: Definitely, provided the optimum resistance value is established and used. Rush Drake, W4ESK, reported that during the 1951 CQ DX Contest he "couldn't hear 'em on 80" with a hastily erected T2FD, but he had made no effort to establish an optimum value for the terminating resistor, and used the antenna only a few hours. (It's interesting to note that he won the contest!)

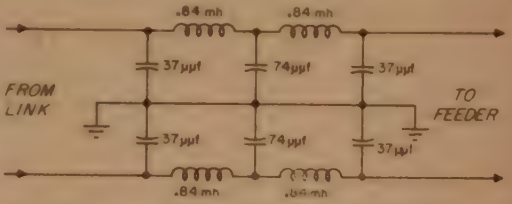


Fig. 2. This simple filter, when inserted as shown in Figure 1, has worked very well with 600-ohm lines.

Question: How is the transmission line coupled to the final amplifier?

Answer: If a non-inductive resistor is used, a simple link *(Fig. 1)* is all that is required. Remember that you must couple at your line impedance, otherwise your antenna will not load properly. For a 600-ohm line, a 3-turn link should be used for 20 meters and a 6-turn link will be a good match at 40 and 80. The B & W plug-in links are perfect in this application.

Question: How about TVI?

Answer: That's a good question! The usual precautions regarding parasitics, shielding, feedback into the a-c line, etc. should be taken. A low-pass filter in the line is best for all-band operation. If you operate on one band the half-wave "Harmoniker" type is better, but if you are on only one band, why worry about the T2FD? *Figure 2* shows a simple low-pass filter satisfactory for 300- to 600-ohm lines. Low-pass filters are available commercially for all line impedances.

Question: Should the two antenna wires be side-by-side or one over the other?

Answer: This is immaterial, although it usually is easier to erect them side-by-side, in the same plane as the surface of the earth.

Construction Notes

Now for some helpful hints. The best connectors for the round end terminals of a resistor approxi-

*The PHOTOCON SALES (417 N. Foothill Blvd., Pasadena 8, Calif.) have advised us that they have the following available from stock, as this is being written.
300-ohm G.E. globar resistor (200-watt rating) new at $1.50 each.
600-ohm G.E. globar resistor (100-watt rating) new at $1.00 each.

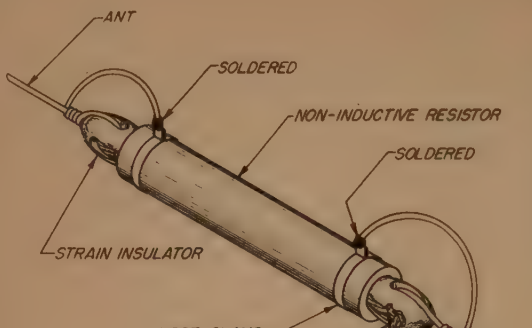


Fig. 3. A very easy method of mounting the terminating resistor is shown above. Note that two egg type insulators are tied together with a short length of heavy cord. This cord runs down the hollow center of the terminating resistor. The radiating wires are attached to the insulators and short jumpers brought over to the resistor terminals.

mating one inch in diameter are ordinary hose couplings, available in any hardware store for a dime. They won't rust and no soldering to the resistor is necessary, although the antenna should be soldered to the connectors.

No strain should be placed on the resistor. If it is hollow, and it usually is, a stout cord, similar to a venetian blind cord can be passed through it and a strain insulator used at each end, as shown in *Fig. 3.* Use spreaders at each end of a heavy resistor. A 3/8-inch diameter wood dowel is fine. Wipe them with oil before installing. A threaded 3/16-inch diameter brass rod is ideal for the high end and it serves both as a spreader and connector for the two antenna legs. At the low end it is usually easier to attach insulators to a short pole or building (far enough apart to give the proper separation) and solder a connecting wire between the two antenna legs.

Further experimenting indicates that formulas for length and spacing previously published for the lowest frequency to be used remain the best. However, with negligible operational loss an antenna cut for 40 meters will, for example, load perfectly on 80. *Figure 4* shows the installation the author has used for some time on 20, 40 and 80 with excellent results. On 40, the band for which the antenna is cut, the T2FD is definitely superior to a "center-fed Zepp" for DX. Reports average two S-figures higher from Europe, South Africa and Australia even though the loading to the final amplifier is slightly less than with the tuned-feeder current-fed antenna used as a "standard."

There is a "mental hazard" with the T2FD that is hard to overcome. Upon seeing an antenna with one end only six feet from the ground (in contrast to the usual "higher the better" skywire), one experiences a natural reaction to the effect that "It won't get out." Don't be fooled. The T2FD will hold its own with other omni-directional antennas and normally out performs any of them when properly loaded.

This may be a good place to mention that the long-haired gents still cast a jaundiced eye at the "squashed rhombic." Admittedly it is theoretically inferior but it may be time to overhaul some of our theory! The U. S. Air Force finds it acceptable at Pacific Bases; the British RAF are well satisfied; our Navy uses it at certain locations; Japanese domestic communications on Kyushu use it exclusively, and some 200 Hams have taken the trouble to express to the author the excellent results they have obtained. It's not a "cure all" but if you want a simple unostentatious skywire, which requires little space, that will put out in commendable fashion on 3 or 4 ham bands and is omni-directional, you can't do better than put up a T2FD some Sunday afternoon.

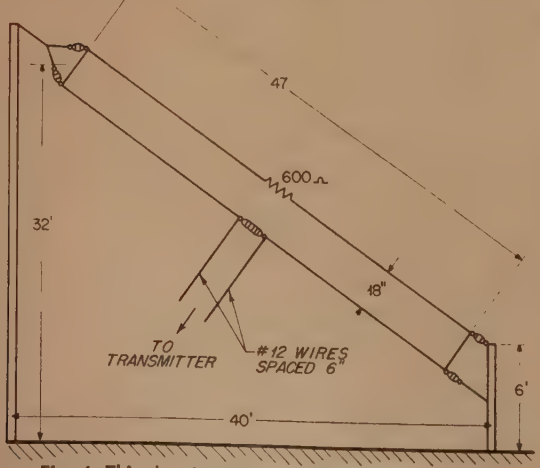


Fig. 4. This drawing represents the antenna that appears on the opening page of this article. Although it was cut for the 40-meter band it has been used on 80 meters with only a small power loss.

"No, look here, dear. Here we are in the U.S.A. We must beam further to the south hit the VKs down here."

The Gs' Point of View

L. H. THOMAS, G6QB

Assistant Editor SHORT WAVE MAGAZINE

When we decided to put together a "Feature DX issue," we invited G6QB to prepare for us a post mortem on DX as viewed by our British colleagues. Undoubtedly, you will also find his DX summary as interesting as we have here.

Our thanks to G6FO, Editor of our British contemporary, for the use of the photographs originally printed in SHORT WAVE MAGAZINE.—Editor

We all take our DX in different doses, out of different bottles and from different directions. So the writer need make no apology for the fact that this brief review of post-war DX is written from the only point of view which he really knows —that of the British operator. DX-chasing is really a hobby within a hobby, and for every thousand Hams in the world there are probably only twenty or so whose entire interest lies in chasing those elusive ones. We DX-hounds all speak the same language—we all have the same problems (within limits). Therefore the slight English accent that you will notice hereafter merely means that we, on this side, must perforce have a slightly different slant on the business.

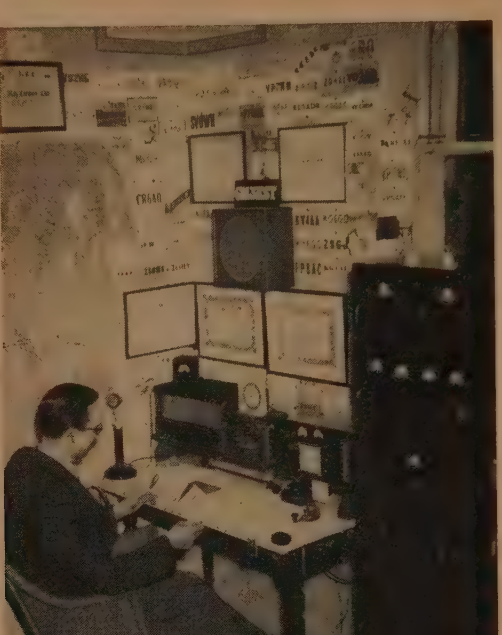
In actual fact the only differences between the DX problem seen through American or British eyes are those of "power" and of "location." The first one is dictated by our maximum power limit of 150 watts input; the second by the fact that our main QRM troubles come from foreign countries and not from our own people. This has implications which are not too obvious, and will be dealt with later.

Post-war activity in the British Isles started rather slowly in January 1946, when licences were re-issued. All of our gear had been impounded by the GPO (British licensing authority—*Ed.*) at the outbreak of war (or, at least, the vital parts of it!) and this was not returned in any particular hurry. So those stations that managed to put out a signal in January 1946 had mostly built something new, and in a rush. Licences then were for 100 watts only, so most of the signals heard on 10 emanated from a pair of 807's.

Conditions were so fantastically good at the time that worldwide DX was worked at once. The writer's own station, using two crystals, two 6V6 doublers and a pair of 807's feeding a simple full-wave antenna, was only representative of many, but 50 or more countries were worked in a very few weeks, one of the very first being G6CU/ZC2, who put the Cocos Is. on the map in a big way.

The U.S. Forces also co-operated wonderfully, and the 10-meter band was full of signals from Guam, Saipan, Tinian (what a T5 from W6PUZ!), Midway, Wake, Okinawa and all points east. Just for the historical interest, outstanding signals of those early days of 1946 were W4YA ("on the Burma Road"), XU1YO, W6PUZ/Tinian, W6NFL/J5 (Okinawa), W2OAA/J8 (Korea), and a whole bunch on Guam including W6QKB, 3FQB, 2LRI, 9DPZ and many others. Over here the DX timing was such that all these fellows came in between 0930 and 1200 GMT, the Stateside W's being absent until noon. Once they arrived (if the North Atlantic path was good) the other DX could be disregarded; Europe was still DX for all W districts, and any European showing his nose was swamped in quick time by a wolf-pack of the type now reserved for ZD7 and suchlike.

After a while the VK's and ZL's started coming in here, also during the mornings, and of course South America and South Africa, as always, were there practically all day. The Asians such as VS1, VU, VS9 and the rest tended to get mixed up with the Stateside signals in the early afternoons, but otherwise we had the world on tap throughout the daylight hours.



The neat layout of Andrew Sinclair GM3EST, which is single-switch controlled and equipped for full break-in working on CW. The rack on the right ends with an 813.

It wasn't long before the country-chasing habit came into prominence, and one of the leaders in the race, needless to say, was G6ZO/I, busy putting Italy on the map. CR9AG, VQ6MI and VS4JH were three nice ones that arrived that spring, and 10 meters carried all the DX until June 30, 1946, when we were licensed for *Twenty* as well, and the power limit raised to 150 watts (fetch out that 813!)

Early Days on Twenty

Now the competition started in earnest, since the mass of W's were audible from 1200 until after dark, and were packed into two narrow bands (phone and CW) instead of being spread throughout the two-megacycles width of the old ten-meter band. And an important turning-point in DX technique was now reached—the universal adoption of VFO procedure. On 10 one could get along quite well by using three or four crystals; in fact the phone-worker's only concern was to keep clear of QRM, and a CQ anywhere in the band would produce an answer from almost anywhere in the U.S. band. But now, on 20, the CW man had to call the DX on its own frequency; if he didn't, someone else did, and the other fellow was usually the one that got the prize.

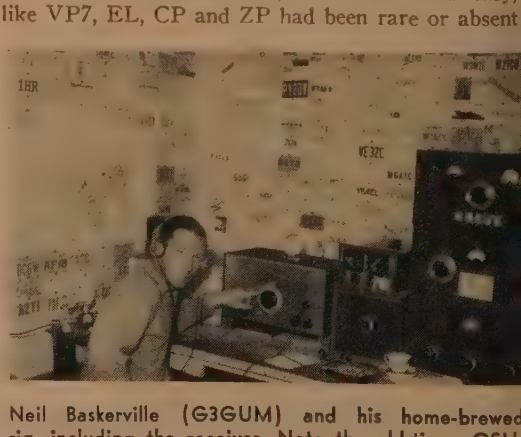
Even on phone, the QRM situation rapidly became so bad that crystals weren't much use unless one had dozens of them. So we went right into the VFO era, from which we have never recovered! Calling on the DX frequency was all very well if there were only three or four of you; but if a G station called a JA, or a KG6, or a VK at the time when the band was also open between the States and the DX, all he could hear on the frequency after a short call was a noise like a thousand mad Highlanders playing the bagpipes (no offence, GM's!) and often the DX station was never heard again.

This was the first serious impact of the high-powered W's (and particularly the *California kilowatts*) on the 150-watt G station, and, at first, it hurt. Later, as the DX stations grew wiser and found that they had worked 140 or 150 countries own frequency, it became obvious that crafty behavior was worth hundreds of watts; the 150-watter using his head could beat the kilowatter who just barged in and called.

Nowadays, unless we meet with a DX station who doesn't really know his stuff, we feel that anyone with a reasonable signal has almost an equal chance, and we are no longer afraid of the forest of rotary beams that is said to occupy the western coast of the U.S.! For we occasionally get through—sometimes by waiting in the queue and sometimes even by jumping it.

With the opening of *Twenty* and the 1947 conditions, anything was possible. Stations who had never dreamed of making a DXCC before the war found that it did not pay to reply to stations on their without even trying very hard. More and more countries came on the air, and eventually it became obvious that the goal for the really keen DX man was not one hundred but *two hundred* countries.

New ones that arrived in 1947 (meaning those that we can't remember hearing in the pre-war years) were such spots as VR1, VR3, KW6, KJ6, VR6, KS6, ZM6, not to mention stray ones such as ZD1, ZD3, ZD6, ZD8, FD8, FE8 and the like. And the twenty odd countries represented by the USSR also became fair game for all and sundry. (The really rare ones like Andorra still remained in the future, for the DX-pedition craze had not yet started.) One or two, now considered easy, like VP7, EL, CP and ZP had been rare or absent



Neil Baskerville (G3GUM) and his home-brewed rig, including the receiver. Note the old-timer QSL's on the left—relics of Neil's days as an SWL

pre-war years; ZK1 showed up, VK1's were ther excitement, VK9 (Norfolk Island) caused ne dogfight—and so it went on.

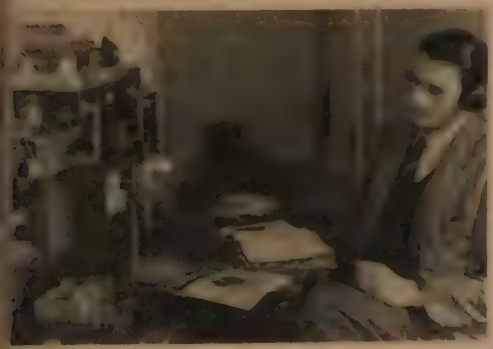
ountry after country was added to the list of sibles, and every one, on its first appearance, ed the now-familiar dogfight, with no quarter n or received. So yet another modification of nique appeared. The knowing ones cut out their 's altogether, and only worked "bread-and or DX" when they really wanted to chew the the rest of the time they really *listened*, ready pounce. For if you were the first Ham to hear new country's first call, the chances are that would get him right away. As soon as your) finished (if not before) the pile-up would t—and it would continue until the best part of keen DX chasers had come away with an range of RST's. By this time the DX man probably expired

o most of the top scorers became miracle-men, e eyes of the average ham—they only appeared n a rare piece of DX was around. And the nd level of DX-ers listened round for these acle men! (If you want rare DX, listen until hear W1FH, or W6VFR, or G6ZO, or F8EO) These "parasitic" tactics paid off, too—pro d you could hear the fellow.

y the end of 1947 quite a list of WAZ's was get together; and remember that before the war e were only *three* stations in the world to e WAZ—ON4AU, J5CC and the late G2ZQ 4YN and AC4RF had been doing their stuff, d handsomely by C8KY, C8YR, C8LS and a others in Zone 23. No other Zone presented great difficulty except, perhaps, Zone 19. The ons were there but the QSL's were not—al

ur own log shows a total of 171, in 40 Zones he end of 1947, but probably quite a few scores 00 had been clocked up by then.

onditions hardly fell off in 1948, although 1947 certainly the peak year. Techniques remained t the same, our 150-watters dashing the kilo-



The compact layout at G3BRV, operated by Ron Bennison. All bands from Ten to one-sixty are covered by the home-built gear on the table. G3BRV is interested in key-punching but not in DX "for its own sake"!

Just a corner of the shack of GW3FSP, a well-known DX-er on all bands, including 160. Separate transmitters for all bands down to two meters are used, with a very effective antenna farm which includes three 270-foot zepps.

watt brigade whenever they could. (After all, given a similar antenna they were only about one S point down, and with a *better* antenna they could compete almost on equal terms.) More and more new countries arrived each month, and QRM on *Ten* and *Twenty* reached saturation.

The LF Bands

Hams being what they are, there were always plenty of them willing to brave the terrors of the other bands, doing things the difficult way. And so the cult of 7 Mc. and 3.5 Mc. grew up once more. Not everyone wants to work new countries all the time, and several fellows were found who would derive more excitement from working a VK or a W6 on *Eighty* than from unearthing something brand-new on *Twenty*.

Round about the end of 1948, we were pretty surprised in the U.K. to find VK5KO coming through on *Eighty* at about 1900 GMT—all in among the local European QRM. If you could hear him, you could work him, and better still, you could work ZL's in the mornings. So 80-meter DX took a bigger lift than it had done even in the pre-war years, but we found new hazards and new difficulties up there. (The principle difficulty, of course, was the appalling strength of local stations chasing the

(Continued on page 74)

The Certificate Seekers

H. S. BRADLEY, W2QHH

66 Lebanon St., Hamilton, New York

Looking for new worlds to conquer? We suggest that you read W2QHH's article. His list of awards to be won by the amateur is undoubtedly the most complete ever compiled.——Editor.

About the Author

One expects something unusual in a station capable of working 215 countries. And W2QHH, operated by H. S. "Howy" Bradley, is unusual enough to interest old-timers and Novice alike.

W2QHH is located in the village of Hamilton, N. Y., the home of Colgate University, 150 miles northwest of New York City. The village is situated in the Chenango Valley, and Howy says that being surrounded by high hills does not improve it as a DX location. He should know, but his post-war total of thirty-nine zones and 214 countries—213 confirmed—is no mean feat from any location.

Equipment

A VFO, high power, and high-gain antennas always help in establishing a high DX rating; in view of which, a look at W2QHH's equipment is enlightening. The transmitter is a crystal-controlled *Millen 90800*, covering 1.8 to 30 megacyles. Power input averages thirty-five watts. The receiver is a *Collins 75A-1*, supplemented by a *National SW3* for the 1.8 mc band and as a monitor.

Antennas are two end-fed, 135-foot wires, abo thirty feet high for frequencies from 3.5 megacycl to 30 megacycles, and a 270-foot one, twelve fe high, bent in a semicircle, used on the 1.8-m band. An indoor, close-spaced 28-mc beam is al available, but is so inefficient that it is seldom use except as a receiving antenna. Indoor receiving a tennas are used almost exclusively in order to redu noise pickup from a nearby power plant and hig voltage lines.

The Operator

Such simple equipment and a noisy location not usually add up to an outstanding DX reco The man who first said that any ham station w ten per cent equipment and ninety per cent operat might have been talking about W2QHH. He Bradley is married and has a junior operator, ag eleven. He is employed as a postman and repo that walking twenty miles a day delivering mail not the best preparation for staying up late work DX. His hobbies, other than amateur rad include hunting, fishing, trapping, and playing so ball. He is also an avid stamp collector, specializi in United States, Canadian, and Newfoundla postals.

Howy was first licensed in 1933, receiving call W8JIW, which he held until the FCC re

nged the call areas several years ago, when he was signed W2QHH. Howy's election to membership both the A-1 Operators Club and the First Class erators Club, plus being awarded a Public Service rtificate, indicates the quality of his operating. ossession of a thirty-five-wpm code certificate in ates, too, that it is not necessary to slow down hum.

W2QHH's interest in four and five band contacts rare DX stations has resulted in many "firsts" he is especially proud of is with 1A3GVI, ked on 3.5 7, 14, 27, and 28 megacycles. His mate goal is a four band DXCC, and he is well this way. The score to date stands at 213 countries 14 Mc., 106 on 28 Mc., 96 on 3.5 Mc., and 96 7 Mc. The relatively low 40 meter total is explained limited activity on that band prior to 1951.

igh power (thirty-five watts) operation is a comatively new development at W2QHH. Before acing the Meissen transmitter in 1950, power input er exceeded twenty watts. Some of his rarest untries, including fifty-three on 3.5 mc, were worked h from ten to seventeen watts input. Even today, mc input runs considerably below thirty-five tts. Nevertheless, he has worked thirty-seven States.

Directory

A Comprehensive Listing of Current DX Awards

', GD, VP4, VP9, KG4 and KV4 on that band.

Awards

Howy's collection of rare DX awards is probably e world's most complete. It includes WAC/YL and only WAS/YL certificate yet to be issued and the t four band WAS, WPR 225, Empire-DXCC, A, and WAA certificates awarded to a United tes amateur.

n addition to working DX, W2QHH keeps traffic edules with isolated areas, often being the only ans of communication between men stationed in m and their families in the States. And although marily a c.w. man, W2QHH occasionally operates and 28- mc phone.

Howy would also like to take this opportunity to nowledge the many thanks due fellow amateurs items of equipment in use at W2QHH, and to DX fraternity here and abroad who have so lly lent a helping hand in making these QRP ievements possible.

n reply to the question of how to work DX with power, Howy says his method is just to keep ling them until they come back, saying nothing ut the "know-how" required to sneak his call ough while competition is hopelessly interfering. reports average considerably below those reved by the KW boys, but he occasionally surprises self (and them) by getting a better one. As might expected. W2QHH firmly believes that all Hams uld be better off with a 100-watt power limit.

—W9EGQ

The Directory

Many amateurs have earned one or more of the certificates, such as WAC, WAS, WAZ, and WBE, offered by *QST*, *CQ*, and the *RSGB* in recognition of outstanding work by radio amateurs. Some amateurs have earned all of them. Doing so is a real achievement, but does not leave them, like Alexander the Great, with no new worlds to conquer. They can still work towards having the certificates endorsed for a specific band or mode of communication. For example, 3.5-megacycle WAC Certificates are almost as rare as hams who admit they have good locations. Nine 50-megacycle WAS certificates have been issued to date, and several amateurs are approaching the halfway mark towards one on 144 megacycles. An impossible goal? Maybe, but that is what they said about WAS above 50 megacycles not too many years ago.

In addition to these awards, other amateur organizations throughout the world offer certificates of their own. These less publicized awards are particularly interesting to the low-power man, because they often place a greater premium on skill and perseverance than on signal strength. On the other hand, they are still a very real challenge to the high-power man.

Working several KP4 stations is not too difficult for a high-powered station, but power is not much help in gathering twenty-five or fifty QSL cards for a WPR-25, or WPR-50 certificate, awarded by the Puerto Rican Amateur Radio Club to stations submitting proof of contact with twenty-five or fifty KP4's. And each time another twenty-five-contact sticker is affixed to one's certificate, he feels a great sense of achievement. (W2QHH should know. He is currently working for his 250 contact sticker.—*Editor*)

Many of the certificates in the following list are extremely rare. Several have been earned by only one amateur in the *world*, others have yet to be earned by the first United States Amateurs.

Most of the awards have certain rules in common. Most will be endorsed for single-band work, or for phone or CW. The latest official country list, as published in *CQ* and *QST*, determines what is or is not a country. All contacts must have been made from within 150 miles of the point from which the original one was made. Unless otherwise stated, stations contacted must be "land" stations, not maritime-mobile, etc., to be counted towards an award.

Many of the awards specify minimum reports, usually RST338 for CW and R3 S3 for phone.

Always send evidence by first-class, registered mail, and enclose sufficient postage for its return by the same means. This is especially important for mail to South America.

Decision of the Award Committee of the sponsoring organization is final in any question concerning the award.

(No claim is made here for the accuracy of all details pertaining to the requirements outlined below. We wish to thank the many clubs and other organizations that cooperated in the preparation of this material. Where and whenever possible the information has been verified and is correct as of this writing—*Editor.*)

ALL AFRICA AWARD (AAA): South African Radio League. Awarded to any amateur who is a member of an organization affiliated with the IARU, submitting proof of contact with the nine ZS call areas (ZS1 to 9) and twenty-five additional countries on the *African mainland.* Islands are excluded, and all contacts must have been made since November, 1945. Special endorsement for contacts with all of the possible forty-one countries on the African continent.

Send QSL cards and a list of claimed contacts to: SARL, Postbox 7028, Johannesburg, Union of South Africa. Enclose fifty cents, if not an SARL member. No. 1 for "W" went to W2QHH.

BRITISH EMPIRE TRANSMITTING AWARD (BERTA): Radio Society of Great Britain. Awarded to any amateur submitting proof of contact with at least fifty countries and specified call areas of the British Commonwealth. The countries that apply towards this award are all British nations appearing on the official list, plus VO1 and VO6, with Canada, Union of South Africa, and Australia divided into their call areas. Contacts with mobile stations are permitted if their exact location is shown on the QSL card.

Send proof to RSGB, New Ruskin House, 28-30 Little Russell St., London, W. C. 1, England. Enclose fifty cents if you are not an RSGB member.

DIPLOME Des PROVINCES de FRANCE (DPF): Reseau des Emetteurs Francais. Awarded upon proof of contact with sixteen of the seventeen French provinces. Contacts must have been made since January 1, 1951, and must be all CW or all phone.

French Provinces: Alpes, Alsace-Lorraine, Auvergne, Bourgogne, Bretagne (French zone of Germany), Champagne, Corse, Franche-Comte, Gascogne, Ile-de-France, Languedoc, Nord, Normandie, Poitou, Provence, Touraine, and Ville de Paris.

Send proof of contacts and three International Postal Reply Coupons to: R. E. F. (DPF), 72 rue Marceau, Montreuil-sous-Bois (Seine), France.

DIPLOME de L'UNION FRANCAISE (DUF): Reseau des Emetteurs Francaise. Awarded in steps. Completion of the first three earns the letter *D* in blue, the letter *U* in white, and the letter *F* in red (The French National colors) and comprise the "Certificate of Honor." Completing the last step earns the "Certificate of Excellence," and a silver medal and bar suitably engraved with recipient's call letters and the award number.

Requirements for stations outside of Europe are:

(1) Contacts with four French Empire stations in three continents.
(2) Contacts with ten French Empire stations in four continents.
(3) Contacts with twenty French Empire stations in five continents.
(4) Contacts with thirty French Empire stations in six continents.

All contacts must have been made since April 1, 1946.

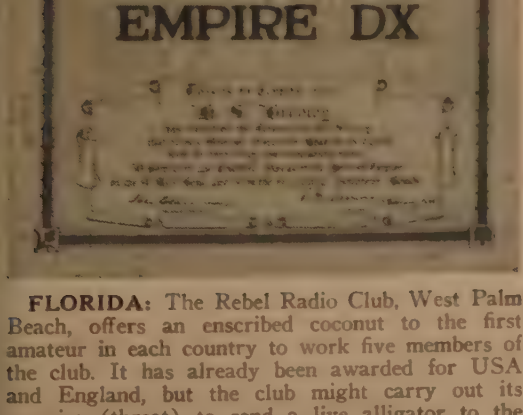
The first three awards are issued free. The last requires a fee of 700 francs (about $3.25). United States and Canadian amateurs may submit applications for DUF via ARRL.

COLUMBIA: The Radio Club del Atlantico presents a certificate to stations working ten HK1's. Send proof to: Galo Dugand, HK1DZ Apardtado Nacional 134, Baranquilla, Colombia.

DX CENTURY CLUB (DXCC): American Radio Relay League. Awarded upon proof of contact with one-hundred or more countries. After original award has been made, endorsement stickers will be issued for each additional ten confirmations

In addition to credit granted on the receipt of written proof, DXCC credit is allowed for contacts made in ARRL DX competitions under certain circumstances. Sufficient other confirmations must be available so that credit for contacts will bring the total to one hundred or more. Before requesting this service, inspect contest results, published each year in QST. If the station is not listed, he did not submit a log, and verification is impossible. If it is listed, forward the usual data on the contact. Under no circumstances is such confirmation possible until contest results have been published in QST. Both a post-war and an all-time DXCC award are available. Send proof, with a list of contacts to: The American Radio Relay League, Inc., 38 LaSalle Road, West Hartford 7, Conn.

EMPIRE DX CERTIFICATE (EDXC): Radio Society of Great Britain. Awarded to RSGB members submitting confirmations of contacts with one-hundred or more British Commonwealth call areas. Fifty of the contacts must have been made on fourteen megacycles and the rest on the other amateur bands. See BERTA for additional information.

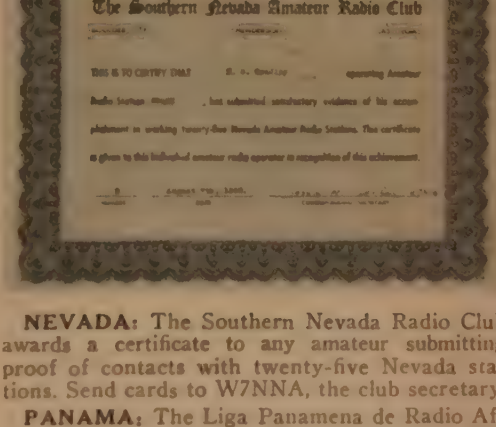


FLORIDA: The Rebel Radio Club, West Palm Beach, offers an enscribed coconut to the first amateur in each country to work five members of the club. It has already been awarded for USA and England, but the club might carry out its promise (threat) to send a live alligator to the first station to work ten of its members. (Similar awards—apparently sans alligator—are also being offered by the Corpus Christi, Nashville and Orlando Amateur Radio Clubs. If these, and any other clubs offering such certificates will write to me, I will attempt to prepare a supplement to this Directory.—*W2QHH.*)

HELVETIA 22 (H22): U. S. K. A. Awarded to stations submitting proof of contact with HB stations in each of the twenty-two Swiss cantons. Stations in Europe must work two each, the rest of the world, only one each. All contacts must have been made since April 15, 1948. Send confirmations to: Traffic Manager, USKA, Postbox 1367, Berne, Switzerland.

ISRAELI: The Israeli Amateur Radio Club operating through 4X4BX has announced an award calling for sixteen different 4X4 contacts with at least one of them on 80, 40, 20 and 10 meters.

MARITIME-MOBILE CLUB: Honorary membership in the Maritime-Mobile Club is granted upon proof of contact with thirty MM stations accompanied with a list of the contacts. Send to: John McKinley, W3OB, 1317 Orangewood Ave., Pittsburgh, Penna.



NEVADA: The Southern Nevada Radio Club awards a certificate to any amateur submitting proof of contacts with twenty-five Nevada stations. Send cards to W7NNA, the club secretary.

PANAMA: The Liga Panamena de Radio Aficianados awards a certificate for twenty HP contacts. Send proof to: LPRA, Apartado 1616, Panama City, Republic of Panama.

RAMEY AIR FORCE BASE, PUERTO RICO: Ten contacts with KP4's on Ramey AFB will earn a certificate. Send proof to: Secretary, Ramey Amateur Radio Club, Box 120, APO 845, Postmaster, N. Y.

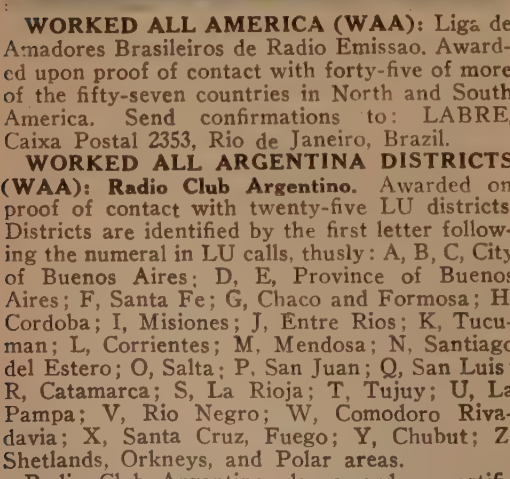
SOUTH AFRICA AND AUSTRALIA: The radio clubs of Pietermaritzburg, Union of South Africa, and Moorabbin Radio Club (VK3) offer friendship awards with their members. Ask VK3's, and VK4's and ZS5's for details.

SWITZERLAND: The amateurs in the canton of Aargau award a special cartoon certificate to amateurs submitting proof of contact with a minimum of forty-five European countries. This is a "friendship" award. Ask HB9CA, EU, IR, JJ, KB, KC, LK, MQ, or NQ for details (see illustration of this award at the top of the next page overleaf).

SHORT WAVE MAGAZINE AWARD: *SW MAGAZINE* (London) offers a difficult-to-obtain certificate. Contact requirements are:

1.7 Mc: three continents and fifteen countries.
3.5 Mc: five continents and forty countries.
7 Mc: all continents and forty countries.
14 Mc: all continents and 180 countries.
28 Mc: all continents and ninety countries.

Send list of the 405 contacts to *SW Magazine*, whose DX committee will request certain cards for checking. Failure to produce them will result in disqualification. *SW Magazine* will also now certify proof of contact with at least twenty countries on four different bands. Address: *Short Wave Magazine*, 53 Victoria St., London, England.



WORKED ALL AMERICA (WAA): Liga de Amadores Brasileiros de Radio Emissao. Awarded upon proof of contact with forty-five of more of the fifty-seven countries in North and South America. Send confirmations to: LABRE, Caixa Postal 2353, Rio de Janeiro, Brazil.

WORKED ALL ARGENTINA DISTRICTS (WAA): Radio Club Argentino. Awarded on proof of contact with twenty-five LU districts. Districts are identified by the first letter following the numeral in LU calls, thusly: A, B, C, City of Buenos Aires; D, E, Province of Buenos Aires; F, Santa Fe; G, Chaco and Formosa; H, Cordoba; I, Misiones; J, Entre Rios; K, Tucuman; L, Corrientes; M, Mendosa; N, Santiago del Estero; O, Salta; P, San Juan; Q, San Luis; R, Catamarca; S, La Rioja; T, Tujuy; U, La Pampa; V, Rio Negro; W, Comodoro Rivadavia; X, Santa Cruz, Fuego; Y, Chubut; Z, Shetlands, Orkneys, and Polar areas.

Radio Club Argentino also awards a certificate upon proof of contact with the twenty-one American republics: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatamala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Salvador, Uruguay, U.S.A., and Venezuela. We also understand that there is an award given for contacts with 100 different LU stations. Send your proof for either award to R. C. A., Av Liberador G1, San Martin 1850, Buenos Aires, Argentina.

WORKED ALL BRAZIL (WAB): L.A.B.R.E. Awarded upon proof of contact with each of the twenty Brazilian states, the federal district in which Rio de Janeiro is located, counting as a state. Address: LABRE, Caixa Postal 2353, Rio de Janeiro, Brazil.

WORKED ALL BRAZILIAN DISTRICTS (WABD): L.A.B.R.E. awards a certificate upon submission of QSL proof from each of the nine PY districts. Address above.

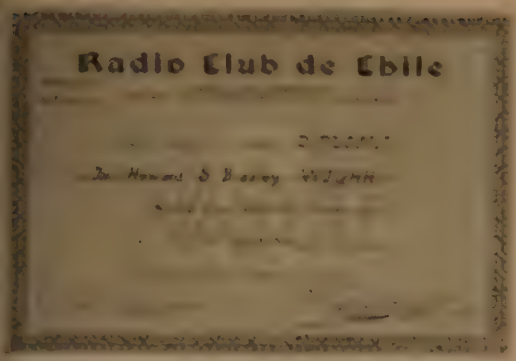
WORKED ALL BELGIAN PROVINCES (WABP): U.B.A. Awarded for contact of each of the Belgian Provinces on two bands. Further, the Bruges Club offers a certificate for working ten of its members. Send the necessary confirmations (18 provinces) to: UBE, Boite Postale 634, Bruxulles, Belgium.

WORKED ALL CONTINENTS (WAC): International Amateur Radio Union. Awarded to members of an affiliated organization who submit proof of contact with the six continents. USA and Canadian amateurs send proof to ARRL, 38 LaSalle Road, West Hartford 5, Conn. Applicants in countries where there is no IARU affiliate also send their proof to ARRL with ten International Postal Reply Coupons or fifty cents, U.S.A. money.

WAC/YL: Awarded by YLRL upon proof of contact with a station operated by a licensed YL in each of the continents. Verify address with W1FTJ or W5RZJ, YL editor of *CQ*, and send confirmations to: Custodian of Certificates, YLRL.

WORKED ALL CALIFORNIA COUNTIES (WACC): Oakland, California, Radio Club. Awarded upon proof of contact with each of the fifty-eight California counties. Mobile contacts may be counted. Send proof to: Oakland Radio Club, 906 Fallon St., Oakland, Calif.

WORKED ALL CUBAN DISTRICTS (WACD): A.R.A.V. Awarded upon contact with seven Cuban call areas. CM4 is not required and CM9 is not classed as a district. Send proof to A.R.A.V., Apartado 136, Santa Clara, Cuba.



WORKED ALL CHILE (WACE): Radio Club of Chile. Awarded upon proof of post-war contacts with seven Chilean call areas. Send confirmations to: RCC, Casilla 761, Santiago, Chile.

WORKED ALL CX (WACX): The Radio Club of Uruguay is now granting an award for proof of QSO with each of the CX States (Departamentos). QSL proof should be forwarded to Casilla 37, Montevideo.

WORKED ALL EUROPE (WAE): D.A.R.C. Awarded in three grades as per the following table:

WAE—Third Class: forty European countries and one hundred points.
WAE—Second Class: fifty European countries and 150 points.
WAE—First Class: fifty-five European countries and 175 points.

To the fifty-six European countries on the official list, the D.A.R.C. adds Sicily, the Dodecanese Islands, European Turkey and Pelagic Is. Stations outside of Europe compute points on the basis of two per contact on 1.7 and 3.5 Mc., one point per contact on 7, 14, and 28 Mc., and three points per contact above 30 Mc.

WAE-Second Class entitles the winner to a one-year subscription to *DL-QTC*, and WAE-First Class bestows the subscription and honorary membership in D.A.R.C. Six International Postal Reply Coupons are required for the first two awards, and eight for the third. Send proof to: D.A.R.C., Box 585, Stuttgart, Germany.

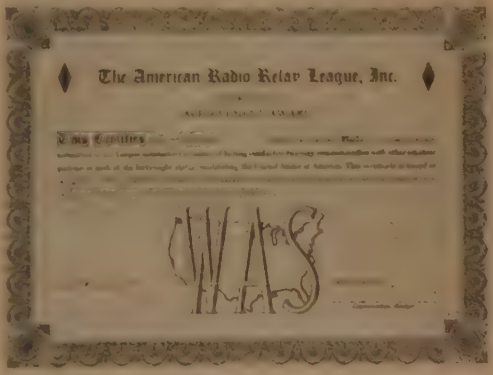
WORKED ALL ITALY (WAI): *Selezione Radio* (*Milano*). Awarded upon proofs of contacts with each of the following eighteen Italian regions: Abruzzi, Calabria, Campania, Emilia, Lazio, Liguria, Lombardia, Lucania, Marche, Piemonte, Puglia, Sardinia, Sicilia, Toscana, Trieste, Umbria, Veneto, Venezia Tridentina.

All contacts must have been made since January 1, 1950. Send proof and three postal reply coupons to: *Selezione Radio* (WAI Award). Casella Postale 573, Milano, Italia.

WORKED ALL JAPANESE DISTRICTS (WAJD): Far Eastern Amateur Radio League. Awarded upon proof of contact with seven or more of the nine JA call areas. Send confirmations to FEARL, APO 500, c/o Postmaster, San Francisco, Calif

WORKED ALL PACIFIC (WAP): New Zealand Amateur Radio Transmitters. Awarded upon proof of contact with thirty of the Oceania countries on the official country list. All contacts must have been made since November, 1945. Send proof to NZART, Box 498, Wellington, N. Z.

WORKED ALL STATES (WAS): American Radio Relay League. Awarded upon proof of contact with each of the forty-eight states. Send confirmations to ARRL, 38 LaSalle Road, West Hartford 7, Conn.



WAS/YL: YLRL. Awarded upon proof of contact with stations operated by licensed YL's in each of the forty-eight states. Send confirmations to: Custodian of Certificates, YLRL, after querying W1FTJ or W5RZJ, YL Editor of *CQ*, for latest address.

WORKED ALL SWEDEN (WASM): Swedish Sending Amateurs. Awarded upon proof of post-war contacts with the seven SM call areas. SM8 is maritime-mobile, and is not counted in the award. Stations outside of Europe must work one station in each call area. Those in Europe must work two. Send proof with ten International Postal Reply coupons to: SSA, Stockholm 8, Sweden.

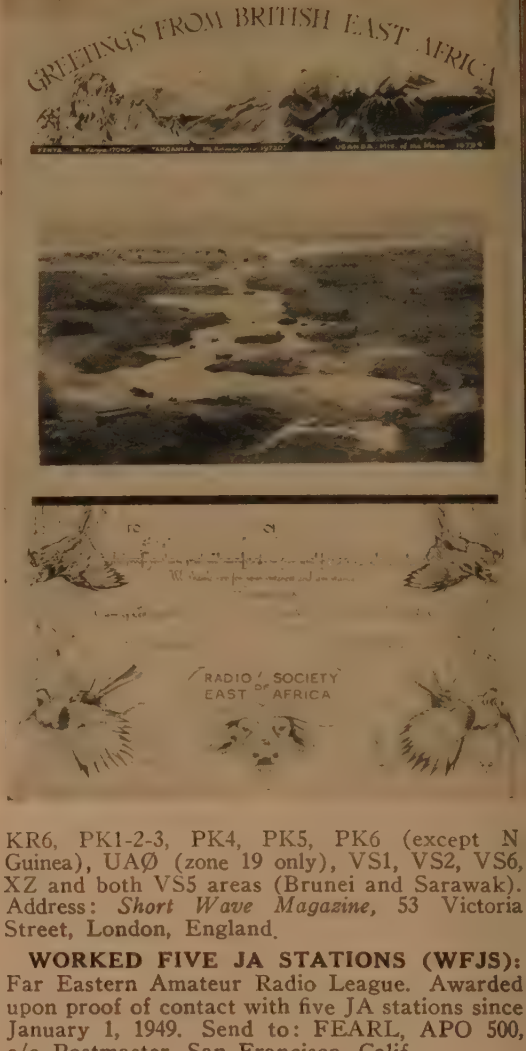
WORKED ALL ZONES (WAZ): *CQ.* Awarded upon proof of contact with the forty DX zones of the world, plus a list of the stations worked. Stations submitting lists of zones and countries worked are eligible for listing in *CQ's* monthly "Honor Roll." Currently, a minimum of thirty-two zones are necessary to achieve "Honor Roll" listing. Report forms available upon request, accompanied by a self-addressed, stamped envelope. Send confirmations only when applying for WAZ certificate. Address all communications to: *CQ,* Cowan Publishing Co. Inc., 67 West 44th Street, New York 36, N. Y.

WORKED BRITISH EMPIRE (WBE): The counterpart of the WAC award, the difference being that the stations on each continent must be in the British Commonwealth. Send proof to RSGB (address with BERTA award).

WORKED CANAL ZONE (WCZ): Canal Zone Amateur Radio Association. Awarded for working twenty-five KZ5 amateurs post-war. Stickers for fifty and 100 contacts also available. Confirmations not required, but full data on each contact must be given to aid KZ5 log checking. Send information to: CZARA, Box 407, Balboa, Panama Canal Zone.

WORKED EAST AFRICA (WEA): Radio Society of East Africa. Contacts with a VQ3, three VQ4's, and a VQ5 in a calendar year earns a special, photographic souvenir card. The card for each year contains a picture of a different East-African scene. Five such cards, plus a VQ1 contact, earns the WEA Award. QSL cards need not be sent, unless requested. Send details, with $1.00 for award, to: RSEA, Box 1246, Nairobi Kenya Colony, East Africa.

WORKED FAR EAST (WFE): This is another award from Short Wave Magazine. Proof of QSO must be shown with 18 of the 23 recognized countries in the Far East. These include; C, C3, C9, CR9, CR10, DU, FI, HL, HS, JA,



KR6, PK1-2-3, PK4, PK5, PK6 (except N Guinea), UAØ (zone 19 only), VS1, VS2, VS6, XZ and both VS5 areas (Brunei and Sarawak). Address: *Short Wave Magazine,* 53 Victoria Street, London, England.

WORKED FIVE JA STATIONS (WFJS): Far Eastern Amateur Radio League. Awarded upon proof of contact with five JA stations since January 1, 1949. Send to: FEARL, APO 500, c/o Postmaster, San Francisco, Calif.

WORKED HC: Guayaquil Radio Club. Awarded upon proof of post-war contacts with five of the seven HC call areas. Send confirmations to: Guayaquil Radio Club, Casilla 784, Guayaquil, Ecuador.

WORKED NORTH AMERICAN CALL AREAS (WNACA): Is yet another *Short Wave Magazine* certificate for non-North American amateurs. It requires QSL cards from the ten W call areas, 9 VE calls (Yukon and N.W.T. separate), VO, VO6 and KL7. Address with the WFE award requirements.

WORKED NEW HAMPSHIRE (WNH): The Concord Brasspounders, Box 312, Concord, N. H., offer an award to anyone working ten counties in that state. Details from address above.

WORKED PUERTO RICO-25 or 50 (WPR-25, WPR-50): Puerto Rico Amateur Radio Club. Awarded upon proof of contacts with twenty-five or fifty KP4's respectively. The same station may be worked a maximum of three times for this award: fixed, mobile, and portable. Send

confirmations to: PRARC, Postbox 3533, San Juan, Puerto Rico.

WORKED PORTUGUESE WORLD (WPW): This award is given by the REP for proof of contact with CT1, CT2, CT3, CR4, CR5, CR6, CR7, CR8, CR9, and CR10 since July 29, 1947. Address: R.E.P., Travessa Nova de S. Domingos, 34-1 Lisbon, Portugal.

Other Certificates

A-1 OPERATOR CLUB: American Radio Relay League. Membership is based on high operating ethics and skill, and is achieved upon being nominated by two members.

BRASS POUNDERS LEAGUE (BPL): American Radio Relay League. Issued to stations reporting a message total of 500 or an originated-delivered total of 100 in one month. One point is earned each time a message is originated, received, relayed or delivered.

CODE PROFICIENCY: American Radio Relay League. Awarded to anyone submitting correct copy for one minute of any of the International Morse code test runs transmitted monthly by W1AW, W6OWP, and WØTQD. Speeds start at ten WPM and increase in five-WPM increments to thirty-five WPM. A certificate is issued for the highest speed copied, and higher-speed stickers may be earned in subsequent transmissions.

FIRST CLASS OPERATOR CLUB: *Short Wave Magazine* (London). Similar to the A-1 Club, membership is achieved upon nomination by a club member and approval by three others.

MILITARY AFFILIATED RADIO SYSTEM (MARS): Department of Defense. Handsome membership certificate signed by Chief Signal Officer of the Army or Air Force, is issued to United States Amateurs who qualify. Details may be obtained by writing to: Military Affiliated Radio System, Pentagon Building, Washington 25, D. C., indicating whether you are interested in Army or Air-Force affiliation.

OBS, OES, OO, OPS, ORS and RM, ARRL "field" appointments, are available to league members interested in various phases of amateur radio. Details in *ARRL Handbook*.

OLD TIMER'S CLUB: ARRL. Available to anyone who now holds a valid amateur license and held one twenty years ago. Lapses are permissible. Send brief history to: ARRL, 38 LaSalle Road, West Hartford, Conn.

PUBLIC SERVICE: If one does meritorious work during any public disaster or emergency, and accounts of his work reach the proper authorities, he will be pleasantly surprised to receive his "Public Service Certificate." This one will undoubtedly give the greatest degree of satisfaction.

RAGCHEWERS CLUB (RCC): ARRL. Talk to a member of the RCC over the air for a half hour and, if both he and you drop ARRL a postal card about it, you will be issued a membership certificate.

NET CERTIFICATES: Most of the amateur nets meeting regularly issue membership certificates. Some are relatively easy to obtain. Others require regular reporting and high-quality operating over a period of months to obtain. The NCS or Net Manager will supply details.

The Final Certificate

After acquiring all of the above certificates there must be something left to do, and a slightly embittered member of the NZART has come up with the following suggestions:

WAT (Worked All the Time): Must have missed every opening on 6 meters by being at work.

WAB (Worked All Bands): Must have worked Benny Goodman, Stan Kenton, both Dorseys, etc.

WAWA (Worked All Worked-Alls): Must have at least 100 "Worked All . . ." certificates.

WOOBY (Worked Out of Back Yard): Issued by the **LIBRE** (leaked into broadcast receivers everywhere). Submits proof of contacts within 100 yards.

A shot of W2QHH at the operating position. Or in other words — "A Wife's Eye View of a DX Man!"

Versed in DX

(Concerning Certain Rueful Aspects of Long-Distance Working)

G. FRANKLIN MONTGOMERY, W3FQB
Contributing Editor, CQ

Glad To See You Again

Consider, if you will, the morality
Of the practice of pluraility.
I am speaking of the chap who insists on working
8X2BA over and over again, just for the fun
of it,
While I have yet to raise even one of it!
(I hesitate to gripe,
But I suspect that you, as well as I, Sir, or Madam,
as the case may be, are only too familiar with
this type.)
My man's passion seems to be
Sending, at considerable length and preferably QSZ:
That he received the card all right, and fine
Business, because that makes it 209
Confirmed; that he has raised his beam one more yard
And can 8X2BA notice the difference, and would he
like another card?
And so *ad nauseum*,
With scarcely a pauseum.
Meanwhile, I sit and try to keep my head
And wish, fervently, that he would, for once,
drop dead.

Pse QSL

That DX station five kc
Below us really is S-three,
Yet everybody gives him eight.
Will none among us set him straight?
(*Not me.*)

Seventy-Five

Have you heard of the man in Cologne
Who entered the contest on phone,
Where the awful attrition
Of oral transmission
Abraded his gums to the bone?

To Fall and Winter

The DX contests come again;
The first is drawing nigh.
All hail the time to ascertain
How far the signals fly.
But pardon me if I refrain
With glee from jumping high;
This time, to make it very plain,
I do not care to try.
Remembering the sleepless nights,
The somewhat less than sane
Procedures during calling fights,
The key clicks, and the pain
Of newly lost new countries, I
Propose to pass this contest by.

Call Me If You Hear Anything

I confess that I am baffled
By plans for countries rare
That become completely snaffled
Whenever I am there.
Let Larry call to tip me
On a sked for Urdo-Zoppen;
If I'm on time at two a.m.,
Exactly nothing happen.
But if I fail to make the grade,
It guarantees the prize,
And Larry will have had it made
With fourteen other guys.

How Is Your Standing-Wave-Ratio?

Although I have put in many a long and tedio
hour working on this beam,
It would seem
That no amount of diddling
The dipole lengths and other kinds of fiddling
(Matching stubs and such)
Is getting me much.
According to the last report
My gallon still sounds like a quart.

A VK's Point of View

Flt. Lt. F. T. HINE, VK2QL

R.A.A.F., Penrith, N.S.W., Australia

In order to round out the "Feature DX Issue," we requested the DX Editor of AMATEUR RADIO, the publication of the Wireless Institute of Australia, to summarize DX-ing from "down under." His refreshing account is sure to hold your interest.—Editor.

To compile an article on the Australian aspect of DX-ing that will interest the readers of *CQ*, and at the same time not offend my VK colleagues has presented quite a problem. Rather than look with a critical eye upon DX practices and such, I am going to relate some of the early history of DX-ing from VK-land in hopes that it will recall pleasant memories to those that took part, and will be of interest to the "young squirts" in Ham radio.

Many fellows have forgotten that the licensed power input has never been very high in Australia and for many years before World War II, a maximum of 25 watts was enforced. Gradually we were permitted to increase to 50 watts, and at the present time are permitted 100 watts. Still, the VK boys managed to work their share of real DX although various beam arrays and commercial equipment were unknown. Practically everything in the station was home constructed.

The improvement in equipment available a couple of years before the War helped the VKs, although the final amplifier in most transmitters consisted of receiving type tubes. In 1937, for example, the better than average transmitter used a 53 or 59 as an oscillator, a 46 as a double and another 46 as the final amplifier modulated with a 2A3 or 45. Not impressive, but adequate under the right conditions.

The "Old-Timers"

There are still a number of the "old-timers" of amateur radio active in Australia. One easily recalls VK2CM, VK2NO, VK2NS, VK5JT and VK7BQ, who have also used the prefix of A and OA long before VK became "official."

VK2CM in April 1923 was the first Australian to hear American signals. In the same year he worked New Zealand on 200 meters using a power of 0.0037 of a watt. The following year on 86 meters, communication was established with G2OD on CW, and, in 1926, on phone. In 1925, VK2CM was the first Australian to work South Africa on 20 meters.

This is the No. 1 Australian amateur; Charles D. Maclurcan, VK2CM as seen in his 1953 shack. The receiver is a National HRO and to the left are the 6-meter converter and "R9-er." Below the meters on the top left section are separate finals for the transmitters which vary from 807's to 829's and 813's. Class AB2 807's are used in the modulator. A surplus "Command" unit is built into the right-hand panel as a VFO from 80 through 10 meters.

The author takes a little time out while in VK4. During the two and one-half years as VK4QL a total of 181 countries were worked, 39 Zones, WAS, and a WAC in 23 minutes. All of the DX bands were used.

Probably one of the first amateur mobile marine stations in the world went on the air in 1924. In February of that year A2CM and A2DS made a trip to the Pacific coast of the U. S. A. in the *S.S. Tahiti*. Using low power on 200 and 185 meters, they were able to maintain contact with 2CM's home in Sydney and 6AKW in California.

VK2NO commenced playing with radio in 1911. In the early 20's you Americans will recall his signal as G6XG, the first G to work across the Atlantic Ocean on 90 meters and a power of 10 watts. In 1925, Don came to Australia and at one time operated from the Northwest as VK6NK. VK2NO made our first VK interstate QSO on 6 meters by working VK3MJ in 1947. Don is still greatly interested in v.h.f. and television, but finds time to work the DX bands.

VK7BQ considered the old 31-meter band (amateur allocation in the mid-twenties) a good DX band, and between 1925 and 1930 Len worked 35 countries. When considered in the light of lack of activity and poor equipment, this was quite an accomplishment. In those days, Australian amateurs were permitted to use the 200 to 250-meter broadcast band to radiate entertainment programmes. VK7BQ was a very active participant and his low power transmissions were often heard in New Zealand. VK7BQ remains active on all bands, up to and including our band at 576 Mc.

From 1931 to shortly before the war, a strange call frequented the amateur bands. It was that of VKZ located at Alice Springs in the heart of Australia. The operator of this station was Joe Kilgariff, now signing VK5JT. VKZ was primarily issued for contacting expeditions operating in the heart of Australia. The first transmitter was purchased from one of the returning expeditions and used batteries and a 210 in the P.A. On one occasion a transmitter using a 201A tube operated from a few dry cells managed to get an emergency call over 900 miles on 40 meters.

Calls which come to mind in the pre-war period are, amongst many, VK2YI, 2HZ, 2EO, 2DG, 2QL, 2XU, 2YC, 2TI, 2AGU, 3YL, 3MR, 4AP, 4HR, 4EL, 4EI, 6SA, 6JE, 7CW, 7JB, 7YL, 7LZ and 7CK. VK2HZ later became famous for his exploits of putting together radio receivers while a prisoner of the Japanese . . . VK7CK used to obtain his power from a waterwheel and generator combination . . . Wonder how many will remember the strange "unofficial" calls that appeared on 14 Mc during this period? T4TWO who sent a well designed hand-made QSL. B4UP, PMZ on an expedition in which one of the members was murdered by natives . . . VK2DG made the first pre-war DXCC while VK2QL, 7JB, 7LZ and 7AB were among the few to reach the astounding total of "90 countries worked!"

DX Conditions

There is considerable variation in the DX conditions throughout Australia from north, south, east to west. A good illustration was the operation of VK5NR on 10 meters from central N.W. Australia. Shortly after we resumed activities, this station could not hear a single North American signal for weeks during the time that the Australian east coast boys were working them right and left. But then, in the evening hours, VK5NR would work the Europeans when they were inaudible on the East Coast. After a couple of months, however, the positions completely reversed themselves, although 5NR could still work the Europeans as well.

In the years preceding the war, the east coast stations found it very difficult to raise South Americans or South Africans; a QSO with one of these continents being one of great rejoicing.

(Continued on page 66)

Here is VK2DG, who has won many sections of the VK/ZL contests, the latest being the CW section of the 1951 Jubilee Contest. With 185 countries confirmed VK2DG also holds the first VK/WAS, DXCC, WAJAD, WASM and WAZ.

Ionospheric Propagation Conditions

Forecasts by GEORGE JACOBS, W2PAJ

3620 Bedford Ave., Brooklyn 10, New York.

This February's issue of CQ is the "Feature DX Issue." The following is an analysis of DX conditions expected during the month of February.

GENERAL PROPAGATION CONDITIONS FOR FEBRUARY, 1953:

The following is a brief description of expected short-wave propagation conditions for Amateur circuits from the United States to the five major areas of the world. For specific times of band openings for any particular circuit refer to the **Propagation Charts**. Basic propagation data used in this analysis appears in the Series D Publications of the National Bureau of Standards, entitled "Basic Radio Propagation Predictions," and is based on a predicted smoothed sunspot number of 20, centered on February 15th. Note that all times are now given in LOCAL STANDARD TIME.

Dependent upon observations made during December and early January and based upon certain recurrence tendencies, the most probable period of ionospheric disturbances during February are the 1-2, 5-6, 8, 16-19, 21-26, and 28. February, therefore, will be a month of prolonged ionospheric disturbances.

Europe:

Daytime usable frequencies are going down in accordance with seasonal characteristics, so ten meter openings expected and fewer 15 meter openings than during the winter months. The twenty meter band will improve somewhat on these circuits from what it had been during the winter, with the band remaining open noticeably longer. Not much change in 40 and 80 meters, with both bands supporting some good openings during the dark hours. On some nights, especially during disturbances, the MUF will drop below 7 Mc., and signals will not be heard on 40 meters, although they may be coming through on 80. Possible 160 meter openings on propagationally quiet nights. These circuits considerably favor East Coast and Central USA QTH's.

South America:

Good 15 and 20 meter openings expected during daylight hours from all areas of the USA to all areas of Latin America. Occasional 10 meter openings also possible. Good conditions are forecast, during the dark hours, for 40 and 80 meters, favoring countries North of the Equator. Good 20 meter conditions are expected from shortly before sundown through the early evening hours, with exceptionally strong signal strengths noticed. Some 16 meter openings possible, especially to Central America.

Africa:

During the daylight hours an occasional 10 meter opening to Central and South Africa possible. More frequent 15 meter and quite regular 20 meter openings expected especially to North and Central Africa. Some fairly good nighttime 40 meter openings expected and some occasional 80 meter openings also possible. On quiet nights, the 160 meter band may open between Eastern USA and North Africa.

Australasia:

Conditions on these circuits tend to improve as we approach the equinoctial period (March-April). An occasional 10 meter opening from West Coast, USA, with some 15 and 20 meter openings expected from all areas of the USA. During February 40 meters may be the best band for DX to Australasia, and openings are expected from all areas of the USA during the night hours. Some openings may occur on 80 meters, with these paths favoring West Coast QTH's.

Asia:

No 10 meter openings expected. Conditions on 15 meters, generally poor but some openings expected to the Far East. In general, because of higher absorption due to the long distance of the paths and auroral zone penetration, DX Conditions on these circuits are poor. Some openings should be possible, on 20 and 40 meters, to certain areas of Asia from certain areas of the USA during ionospherically quiet periods (WWV N 7 or better). Not much expected for 80 meters on these circuits.

Post Analysis Of CQ DX Contest:

Shortwave radio conditions during the recent CQ DX Contest were very much as predicted. A general consensus of world-wide observations indicates that the phone period of Oct. 25-27 was somewhat erratic, with conditions being good on the 25th and becoming slightly disturbed on the 26th and 27th with conditions varying between poor to fair on some circuits and fair to good on many others—overall rating generally fair. In general, conditions during this phone period were noticeably better than they were during the previous two contests.

A moderate to severe ionospheric disturbance was noticed during the CW period of the contest, and to quote a European friend, conditions were quite "poorish." Overall ratings for the first and second were poor, becoming fair on the third.

ALL TIMES IN E S T

EAST COAST TO: (Centered on Washington, D. C.)	10 Meters	15 Meters	20 Meters	40 Meters
Scandanavia	Nil	1000-1200 (0-1)	0700-1400 (2)	1700-0400 (2)*
Great Britain & Western Europe	Nil	1000-1330 (2)	0700-0930 (3-4) 0930 1500 (2-3) 1500-1600 (3-4)	1600-2300 (3-4) 2300-0430 (2-3)*
Balkans	Nil	0930-1200 (1)	0700-1300 (2) 1300-1400 (2-3)	1530-2100 (2-3) 2100-0100 (2)*
Central Europe	Nil	0930-1300 (1-2)	0700-0800 (3-4) 0800-1300 (2-3) 1300-1430 (3 4)	1600-2100 (3) 2100-0330 (1)*
Southern Europe & North Africa	Nil	0830-1500 (2-3)	0630-0800 (3-4) 0800-1330 (3) 1330 1700 (3-4)	1630-2200 (3-4) 2200-0400 (2-3)
Central & South Africa	1100-1400 (1)	0800 1430 (1) 1430-1600 (2-3)	0700-1500 (0-1) 1500-1800 (2-3)	1700-0000 (2)
Near & Middle East	Nil	0930-1200 (0-1)	0630-1200 (0-1) 1200-1300 (1-2)	1700-2300 (1-2)
Central America & Northern South America	1100-1600 (2)	0900-1600 (3-4) 1600-1700 (4-5)	0700-1000 (3-4) 1000-1700 (3) 1700-2100 (4-5) 0100-0400 (1)	1800-0700 (4-5)
South America	0900-1600 (2-3)	0800-1330 (1-2) 1330-1730 (3)	0700-1630 (1) 1630-1930 (3-4) 0100-0300 (1-2)	1830-0500 (3-4)
Hawaii	1400-1700 (1)	1230-1800 (1-2) 1800-1900 (2-3)	1100-1800 (1-2) 1800-2130 (3)	2200-0800 (3-4)
Australasia	Nil	1700-2000 (1)	0800-1000 (2) 1000-1900 (0-1) 1900-2100 (1-2)	0100-0730 (2)
Guam & Pacific Islands	Nil	1630-1830 (1)	0900-1100 (1) 1500-1900 (1) 1900-2030 (1-2)	0100-0700 (2)
Japan	Nil	1700-1830 (0-1)	1600-2000 (1-2)	0100-0700 (1-2)
Philippine Islands & East Indies	Nil	Nil	Nil	0330-0700 (0-1)
India	Nil	Nil	0800-1000 (0-1)E	1700-2130 (1)E
West Coast, USA	Nil	1300-1500 (2) 1500-1700 (3)	1000-1730 (2-3) 1730-1900 (4) 1900-2000 (2)	2000-2300 (4-5) 2300-0800 (2-3)*

ALL TIMES IN C S T

CENTRAL USA TO: (Centered on St. Louis, Missouri)	10 Meters	15 Meters	20 Meters	40 Meters
Great Britain & Western Europe	Nil	0930-1230 (1-2)	0700-1400 (2-3) 1400-1500 (3)	1630-2000 (2-3) 2000-0330 (1-2)*
Central Europe	Nil	0900-1200 (1)	0700-1230 (2) 1230-1330 (3)	1530-1900 (2) 1900-0230 (1-2)*
Southern Europe & North Africa	Nil	0800-1330 (2-3)	0600-0730 (3) 0730-1300 (2-3) 1300-1600 (3-4)	1600-2300 (3) 2300-0300 (2)*
Central & South Africa	0900-1400 (1)	0630-1430 (1) 1430-1600 (2-3)	0530-1400 (0-1) 1400-1730 (2-3)	1700-2300 (1-2)
Central America & Northern South America	1030-1500 (2)	0800-1500 (3-4) 1500-1700 (4-5)	0630-0900 (3-4) 0900-1600 (3) 1600-1900 (4-5) 0100-0300 (1)	1730-0700 (4-5)

ALL TIMES IN C S T

CENTRAL USA TO: (Centered on St. Louis, Missouri)	10 Meters	15 Meters	20 Meters	40 Meters
South America	0900-1500 (2-3)	0730-1600 (1-2) 1600-1800 (3)	0600-0730 (2-3) 0730-1600 (1-2) 1600-1930 (3-4) 2330-0230 (1-2)	1730-0500 (4)
Hawaii	1300-1700 (1)	1200-1730 (2-3) 1730-1900 (3-4)	1100-1800 (2) 1800-2000 (3-4)	2100-0730 (3-4)
Australasia	1730-1830 (0-1)	1500-2000 (1) 0930-1200 (0-1)	0800-1130 (2) 1130-2000 (1) 2000-2130 (1-2)	0100-0700 (2-3)
Japan	Nil	1630-1830 (1-2)	1530-2000 (2-3)	0030-0500 (3) 0500-0800 (2)
India	Nil	Nil	0700-1000 (0-1)E 1900-2100 (0-1)A	1700-2030 (1)E 0500-0700 (0-1)A
Philippine Islands & East Indies	Nil	Nil	1600-1900 (0-1)	0300-0800 (1)

ALL TIMES IN P S T

WEST COAST TO: (Centered on Sacramento, Calif.)	10 Meters	15 Meters	20 Meters	40 Meters
Europe	Nil	0900-1100 (0-1)	0800-0930 (0-1) 0930-1130 (1-2)	1700-0000 (1)*
South Africa	1000-1400 (0-1)	0800-1300 (0-1) 1300-1500 (1) 1500-1630 (2)	0600-1200 (0-1) 1200-1500 (1-2) 1500-1800 (2)	1700-2200 (1)
Central America & Northern South America	1000-1500 (2-3)	0700-1500 (3-4) 1500-1700 (4-5)	0600-1500 (3-4) 1500-1800 (4-5) 0000-0300 (1)	1700-0500 (4-5)
South America	1000-1500 (2-3)	0700-1400 (2-3) 1400-1800 (3-4)	0600-1400 (1-2) 1400-1600 (2-3) 1600-1830 (3-4) 2300-0100 (1)	1800-0400 (3-4)
Hawaii	1130-1800 (1-2)	1000-1200 (3) 1200-1800 (4-5) 1800-1900 (2-3)	0900-1700 (3-4) 1700-1930 (4-5)	1900-0500 (4) 0500-0800 (2)*
Australasia	1600-1830 (1)	1200-1800 (1) 1800-1900 (2)	0700-0900 (0-1) 1100-1830 (1) 1830-2000 (2-3)	0000-0600 (2-3)
Japan	1500-1700 (0-1)	1400-1700 (2-3) 1700-2000 (3)	1300-1800 (2-3) 1800-2100 (3-4)	2200-1100 (3-4)
Phillipines & East Indies	Nil	1500-1630	1330-2100 (1-2) 0900-1100 (1)	0300-0600 (1-2)
Marshall Islands	1330-1730 (2-3)	1200-1730 (1-2) 1730-1830 (2-3)	1100-1800 (1-2) 1800-2000 (2-3)	2300-0700 (3-4)
Guam & Pacific Islands	1400-1600 (1-2)	1300-1900 (2-3)	1200-1300 (2) 1300-1800 (1) 1800-2000 (2-3)	0000-0800 (3)
East China (Hong Kong)	Nil	1500-2000 (3)	1400-1900 (2) 1900-2030 (3)	0200-0600 (2-3)
India	Nil	Nil	1730-1900 (1)	0300-0600 (0-1)

Symbols For Expected Percentage of Days of Month Path Open:

(0) None (1) 10% (2) 25% (3) 50% (4) 70% (5) 85% or more

*Indicates conditions on 80 meters will be as good as, or more favorable than on 40 meters. In general, 80 meter band should open about an hour after and go out about an hour earlier than the 40 meter band.

A - appearing after percentage figures, denotes favorable great circle path arrives over "Asiatic" route.
E - indicates signal will arrive over the "European" path.

Gathered by DICK SPENCELEY, KV4AA

Box 403, St. Thomas, Virgin Islands

Comments Requested

For quite some time it has become increasingly apparent that the possibility of securing QSO's in Zones 16, 17, 18 and 19 was becoming steadily reduced. These are the Zones that are coming under the Soviet orbit, the "WSEM" group.

Rather than reduce the requirements necessary to obtain a WAZ Award, I have given considerable thought to the possibility that CQ would establish an entirely new DX award using a somewhat more equitable basis in view of current world conditions. I am also of the opinion that such an award should be an all-band affair, and that if adopted it would be more indicative of DX achievement while, at the same time, encouraging all-band operation.

Scoring in the new DX Award would be according to the following outline. One point would be allowed for each country and one point for each zone on each of the five major DX bands. The bands would be 80, 40, 20, 15 and 10 meters.

Neglecting Zones 16, 17, 18 and 19 and the countries contained therein, this gives a possible total of 36 Zones and, roughly speaking, 255 countries on each band. Or, a total of 180 Zones and 1275 countries on all five DX bands for a grand total of 1455 points.

Active on all bands is YU1AD of Belgrade, Yugo-Slavia. Mirko runs 250 watts to an 813 and has worked 191 countries including 61 on 3.5 Mc. alone. Two ground plane antennas are used on 14 and 21 Mc. and a vertical dipole on 28. Mirko's smooth fist is helped by the W6DPU el-bug which may be seen at lower left.

It might be possible to establish certificate awards on such a point basis starting at about 300 points. This represents an average of 50 countries and 10 Zones worked on each of the DX bands, and should be within reaching distance of many DX-ers. A new "Honor Roll" would be established and the minimum requirement for entry could be 150 points, equivalent to contacts in 20 countries and 10 Zones on each band. For the really top-notch DX men, certificates could be made available for 500, 750 and 1000 points. These could be named "ABC-Z 300, ABC-Z 500, ABC-Z 750 and ABC-Z 1000." The letters representing "All-Band Country-Zone Award."

Until necessitated otherwise, the Honor system would prevail and QSL's would not be involved. Contacts would date from the close of World War II and, although this would require considerable digging back into your old station logs, this should not be too difficult, and could easily be accomplished on some rainy Sunday afternoon.

In G6QB's DX column in *Short Wave Magazine*, a Four-Band DX table is printed. This is for countries only and for the 80, 40, 20 and 10 meter bands. According to all reports and what information I have at hand, this method has proven to be quite workable in Europe and there seems to be little reason to suspect that the incorporation of "Zone" points and the addition of the 15 meter DX band would not greatly enhance the over-all plan.

Should present WAZ holders tend to take a dim view of these changes, it should be pointed out that they would be among the leaders in any new type of story, and would also have plenty of elbow space to keep on going. The WAZ certificate would naturally be continued, but listings would probably be cut back severely to make room for the new type of scoring.

As I have indicated above, this brain wave is a result of many requests, and it is being printed in the hopes of obtaining your reactions and suggestions, especially from those who would go all out in the quest of DX. Please drop us a card or letter on the subject and if the replies are favorable, we shall attempt to go to work and develop the idea to a final working plan.

Fjalar (Ed) Lindstrom, OH2RY, Lohja, Finland, is no stranger to the DX fraternity. Ed is shown here with the 100-watt rig. He is now building an 813 final and plans all-band operation. Ed's score is 39 zones and 183 countries.

At Time Of Writing

14-Mc DX has been very good in the morning hours for the Caribbean and southern W4 areas with such prefixs as VK, VU, VS7, VS2, AP2, CR9 and VS6 putting in very good signals between 1030 and 1400 GMT. Around 1300 the band opens for the Persian Gulf section with strong phone signals from such as MP4KAC, MP4HBK, YI3BU and VS9AW. Twenty pulls a sharp fade-out during local darkness in the Northern Hemispheres and is generally useless. This does not apply to the Southern Hemisphere where conditions seem excellent after dark.

CEØAA, Easter Island. Luis, CE3AG CE3AX, advises that he should know definitely, by January, whether or not, and on what date, he will be able to set up shop on Easter Island (Isla de Pascua). It is expected this will be some time in early 1953.

CEØAB, Easter Island. Very promising news on Ham activity at this spot also comes from CE3AG who states as follows: A ship, sponsored by the Explorers Company of the island, will be leaving Chile after December 4th. On board will be Fernando Cadiz, the Administrator of Easter Island, and a "Lettine" transmitter of forty watts power which covers the 3.5, 7, 14 and 28-Mc bands. This transmitter should be in operation in January 1953, and will be on the air for the entire year and, possibly, two additional years. This station has been licensed as CEØAB. First QSO's will probably be on phone, but Fernando, who is an old CW man of the 30 WPM variety, has promised to brush the cobwebs from his CW operating and give CW men their full share of QSO's. CEØAB speaks Spanish, English, French and Portuguese in addition to the Easter Island lingo, so world-wide phone contacts will be no problem. CW operation will be concentrated on the frequencies between 14000 and 14015 with xtal control. An SX-42 receiver, now on the island, will take care of the incoming signals. Fernando has been thoroughly briefed on Ham operating by Luis and will take along such helpful literature as the Callbook, Handbook, QST and CQ. Easter Island has a cable service to the Chilean mainland and it has been arranged to transmit the station logs of CEØAB to CE3AG by this method, thus, QSL's will be greatly expedited considering postal service to Easter is once per year. To defray costs of equipment and cable service it is requested that all QSL's sent to CE3AG for CEØAB be accompanied by one dollar. This will climax a three-year effort of Luis to put Easter Island on the air. We wish all parties success.

VK2LN, Lord Howe Island. From VK3CX and "The Pacific Island Monthly," we hear that there is an active Ham on Lord Howe Island under the call of VK2LN. He is quite active on 7 Mc. This island, with an area of five square miles, is a dependency of New South Wales and is located 436 miles Northeast of Sydney. Its radio status, as far as we can determine, is the same as any VK2.

ZC5VS, North Borneo. This station has been contacting West Coast stations on 7020 around 1600 GMT. W7RT tells us that ZC5VS will receive a visit from Fung, VS6CG, on Dec. 16th. He will bring his DX QSL's plus a batch of ZC5VS cards. Hugh has been promised an all-band transmitter and should be able to get on all bands at time of reading. We are counting on him to make good use of 14 Mc. ZC5VS is Chinese and works at the Sandakan Airport. QSL's may go via VS6CG or direct to: T. S. Hugh, Box 186, Sandakan, British North Borneo.

OQØ, Ruanda Urundi. OQ5RA informs us that the new prefix, OQØ, is now official and a photostatic copy of the document is on its way to KV4AA. This will affect OQ5DZ, OQ5CZ and OQ5AV who operate in that "Trust Territory." Ruanda Urundi has its own postage stamp issues and we hope to have it entered as a separate 'radio' country.

VK1HM, Cocos. From ZS6BW, W5ASG and The West Gulf Bulletin we hear that VK1HM should now be active on Cocos Island. He is located at an AII radio station which will be permanent.

VS9AW, Sultanate of Oman. The operator of this station leaves around mid-December. Unconfirmed reports have it that VS9AS will take over.

Through courtesy of W6YYN/1, W1NWO and the West Gulf Bulletin we list the following which was tabulated from confirmations credited to DXCC members. While the below may not be the latest word or even a complete listing we feel that it will go far to unravel the tangled Antarctic QTH business: (*denotes phone operation)

Antarctica

VP8's: AJ*, AN, AM*, AK*
CE7's: (Now CE9) ZG*, ZH*, ZJ*, ZQ*, ZN*, 8AS*.
LU's: 2ZJ, 3ZB, 5ZB*.
LA4QC, W3LYK/*

South Georgia

VP8's: AD*, AR, AT, AU*.

South Orkney

VP8's: AP*, AZ*.
LU's: 1ZA*, 2ZA*, 4ZA*, 8ZA*.

South Shetland

VP8's: AK*, AO, AD*.
LU's: 3ZI*, 4ZI*, 7ZI, 9ZI, IZC*, 7ZC*

Falklands

VP8's: AB, AD, AI*, AM, AP*.

Heard Island

VK's: IF*, IHV, IPG*, IRA*, INL*, IVU*, IYG, 3OY, 3ACD.

Macquarie Island

VKI's: AD*, BS*, RB*, RD*, RF.

Strangely enough no QSL's have been received from VP8AE and his QTH is not definite. Each heading, above, is counted as a separate country.

MP4BAU, Qatar, returned from leave in England around Nov. 6th and has been handing out contacts on 7015 between 0030 and 0200 GMT. . .W1DR nabbed SV5UN, 14345, A3, 1505 GMT. . .B1AB, Formosa, has been on 14048 1100 GMT . 4UAG, Karachi, and 4UAS, Kashmir, have been very active near 14080 1130 GMT. . . OY3IGO promises to be on 14060 every Saturday at 2200, GMT, and other weekday nights whenever able. Ingvar runs 450 volts to a pair of 1625's. Should any QSL's be missing let him know and he will send another along. . .OQ5RA and OQ5CP QSO'ed one RD6RR who gave his QTH as "New Siberian Island" and said QSL via Box 88, Moscow. hm-m-m. . .VK5BY nabbed PK8CW who said his name was Ron in Sorong, Neth. New Guinea, and that he was leaving for VK land very shortly VK3CX ponders one ZB3A. He also heard ZL1PO calling ZM2CB (??). . .KG4AF and W2MOJ scored with PX1YR, Andorra, 14 Mc. We sure hope Yves can get more consistently.

W6UAX/MM seeks licenses which would enable him

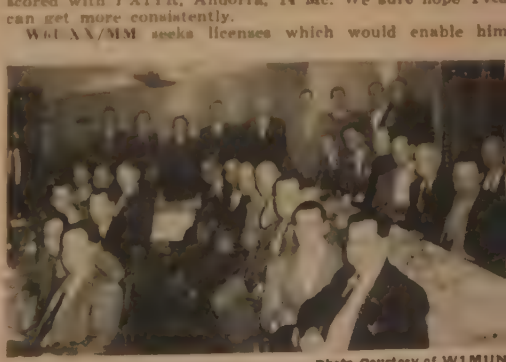


Photo Courtesy of W1MUN

Seen above are some of the 50 New England DXCC members who attended the recent get-together at Cambridge, Mass.

At W6NIG's shack (Joe Johnson, Vallejo, Calif.) we see (left to right) DX'ers W6NIG, Joe; W6GIZ, Dan; W6MVQ, Dick; and W6MEK, Frank. Looks like they all have just worked a couple of new ones!

to operate from FO7/Clipperton Is., Galapagos Islands (HC8) and Cocos Island (TI9). Evan visits these spots fairly frequently. In November he QSO'ed KH6UL, W5IZW, W6RRO, W6BTX and W6EET/Mobile while laying off Clipperton Island one quarter mile!!! This was on 28-Mc phone using three (count 'em) watts. He may be contacted at home QTH in callbook.

Exploits

ZS2AT rises to 159 with six additions which include ZC2MAC, AC3PT and UM8KAA. . .**KG4AF** makes it 177 with OD5AB, MP4BHK, HC8GI and FG7XA. . . .**W6TI** knocked off ZD7A putting Horace on 214. . . .Ian, GM3CSM climbs to 188 with HZ1MY/VQ6 and VP5BH (Caymans). . .**DL1FF** welcomed QSL's from FN8AD, FB8ZZ, FB8BB and ZK2AA. Armin also added LB6XD and ZD7A to hit 219. . .Egon, **4X4RE**, makes it 215 with VQ6MY, SV5UN, ZD7A, FO8OC and MP4BAM (Qatar '49). . .**W1BFT** goes to 162 with EA9DC, LU4ZI and VQ5CL. . .**W6MX's** new list, plus ZD7A, puts him 'way up there' with 235. . .**W1HA** comes up to date with 15 additions to reach 187. . .**W3DKT** added **VP8AU** and ZD7A for 209. . .**W6GDJ** snagged LZ1KAB for his 226. . .**W3JTC** soared to 240 with ZD7A and MP4BAU . . .**ZD7A** gave W2AGW his No. 234 while W1FH stayed out in front with MP4BAU for 252! ! . . . W8KIA kept up to date with ZD7A, LB6XD and 4W1MY. Glenn now has 232. . . .**WØRBA** comes up to date with nine additions for 157 . . . **W5ASG** adds ZS9G, CR4AC and ZD7A to his phone total for 165 . . . **VK4FJ** pulled in ST2HK, ZS5VR and HB1JJ/HE to reach 199. . . .**W7ENW** goes to 180 with FR7ZA and LZ1KAB while MP4BAU helped W1HA to reach 196. . .**G6ZO** eases to No. 242 with ZD7A who also helped W8HFE to his 207. . .**OE1FF** is back in the race and adds CR7AD, VS1CX, VQ4DO, FI8YB and FG7XA to reach 141. . .**W6TXL** added FB8BB and 5A3TU for 145. . .**LU5AQ** ups to 128 with EAØAC, VP3VN, ZS2MI, KM6AX, VP4LZ, VK1JC and KAØIG. Only 92 pasteboards in tho. . .**W5MPG** nabbed MP4KAC 14135 1420 GMT and reports him there every day. . . **W2QHH** added EA9AP on 3.5 Mc. for 96 on that band! ! . . . **VK3CP** hooked ZK1AZ, CR9AF and ZK1AZ, all on 7 Mc. . .**W7RT** added ZC5VS and PJ2CE to reach 139. . .**W2ESO** nabbed MP4BAU and LU4ZI on 7 Mc. . .**W5YIG** nabbed KV4AA with a two week old ticket. Yas suh! . . .**VQ5AU** parceled out QSO's to W5AVF, W2BUV and W9YFV. . .**W2CTO** skeds ZD6HN, Sundays, 2000 GMT, 001 . . . **W2MOJ** reports CR8LI at 1207 GMT S8! . . . **W2LCB** keyed with ZS2CR, 7029, ZS9I, 7031 and ZL1CI 3.5 Mc. . .**HH2FL** helped VK2VN, VK3CX and VK3KB, FL has been on each day around 1130 GMT, 14 Mc CW. . .**W1BLF** phoned with VS9AW, MP4KAC, MP4HBK, MP4BBI, VS7PW and OD5AB. . .**W7HXG** ups to 179 with a flock of new ones which include ZD7A, VK1BN, FY7YB, LB6XD, LZ1KAB and VQ4DO. . .**W2QHH** just rec'd. the first H22 (Swiss) Certificate awarded outside of Europe. . .**W6RW** nabbed VP8AP on 3.5 Mc. . .To come back to Howy again. **W2QHH** finally snagged FB8BB for No. 213. 35 watts is tops at the Bradley homestead y'know. . .**VE3XO** pulled in LZ1KAB for 159 along with WAJAD, BERTA and DUF-1 and 2 Certifs. . .**KP4KD** snuk up on MP4BAU for Ev's No. 196 and so added a new one for 3.5 Mc with GI5UR . . **WØRBA** was very happy to add Zone 34 to his collection which now totals 39. 5A3TZ was on the other end. . . **W9ESQ** has 109 on 7 Mc. with 87 confirmed. Some late ones were LU4AAE, KG6FAB, VP4LK, HR2ZE, OK1MB and YU3AIJ. Lou vacationed on 14 Mc. a bit and came up with TG9AQ, VK1JC, OQ5RA, CX6AD, ZP6CR, KA3RN, FY7YB and VE8ML. The VE8 is located at the ALERT weather station near the North Pole. . . Our regular report from **W4KE** tells of contacts on 7 Mc. with HH2LD, FFAG, EA8BF, PJ2AD, 5A3TR, VK6SA, VP6UN, ZE3JP and EA1AB. 14 Mc. accounted for TG9RB, 5A3TU, KX6AI, YU1AD, AA3AA, GD3UB, OQ5CP and GC4LI. . .**K2BU** upped to 144 with ZD7A, ZS3Q and LB6XD. Ken advises the VP8AP has an order in for 750 QSL's and hopes to answer all cards received in the very near future. . .**OE1FF** completed his WAS with QSL's from W7GWD and W7LEE (Our little item on these missing ones brought action, but fast. Tks.). . .

21 Mc.

Conditions have not shown any marked improvement since last writing, although activity continues to increase. **VQ4HJP, ZS3K** and **VQ2DT** put in such strong and consistent signals from Africa that it seems probable that any station in that area would do the same, so let's hear from VQ5, CR7, CR6, etc. . . **G3GUM** added HE9LAA and TI2TG to rise to 55. . .**W4COK** nabbed SU1FX, VQ2DT and CP1BX to increase his lead to 64 countries. Bill moves back to W2COK in December ('52). As our listing of countries is just on the basis of general interest we shall continue his totals from W2 land . . . **KP4KD** spurts ahead to 50 with T12TG, CM9AB, CT3AV, VP9BG, 4X4RE, YU3BC, VQ2DT, VK3NM and EA9AP. . .**VK3CP** nabbed XZ2KN A3 and says VK's work into Europe between 0930 and 1330 GMT. . .**W1RY**, a relative newcomer, worked 37 countries in the CQ DX contest and then went on to add five more putting him on 42. . .**YN1AA** expects to be on 21 when new receiver arrives. . .**TI2TG** goes to 38 with such as OD5AB, A3, LA9T and OA4C. . .**W4KE** keyed with LU9AX, LU1EK, FA9UO, KZ5DE, **FF8AG**, G3AWZ, PY6DU and ZS5MP.

Here And There

W9GDI is on again after years layoff. New QTH is Park Forest I11 . . . G3DCU and G3FNJ parted in London 18 months ago. They recently met again as **VK2AWU** and **ZC4RX** on 21 Mc . . . **K2BCK** got a phone call from KC6QL from Pittsburgh. KC6QL will soon be permanent at KH6QL . . . **CM9AA** received a Jr. Op. on Dec. 6th. Congrats Phil!! . . . **W6WVU/1** is active in Rhode Island. Walt will be there 2 years with USN. . . **KV4AA** climaxed six months work, moving 60 ft. to new shack. The new final with PP 4/125A's runs up to 800 watts . . . FQ8AS, Toto, has been very active. He is the son of FQ8AG. See QTH's . . . YN1AA visited W1BTE. He is now back in YN and will be active all bands . . . W2AOX paid his annual visit to KV4AA. **W8EWS** and XYL also dropped in . . . **W7KVU** moved to Ramsay, Montana after a stay in Portland Ore. John will take care of any missing Montana QSL's covering his former operations there . . . **W3AS** submits info on WAVE certificate. Applicants must show proof of contact with two different VE stations on two different bands with each Canadian Province. Yukon and NWT count with VE7 and, apparently, VO counts with the Maritime provinces. A fee of twenty-five cents must accompany QSL's which go to VE3AUQ . . . **WOELA** finally received VS5ELA QSL's from printer and first batch of 200 went out on week of Dec. 14th. Clyde advises he finally got his transmitter back. This was lost during his Brunei trip. It showed up at Travis AFB, California after being flown in from Korea by airlift . . . **VK9XX** is now in South Africa under the call of ZS5XX he will be remembered also as VK2XX. . . **ZM6AA** received a Johnson Viking transmitter from a US film Company on location in Samoa. ZM6AC is only other active station there. . . **VK3CX** advises that a periodical called "The Pacific Islands Monthly" devotes a page each month to Pacific Ham activity. Notes may be forwarded to ex ZK1AC, VR2AK, P.O. Box 5179. Wellesley Street, Auckland, N. Z. . . .

W3FMC just returned from South America where new Electronics Co. was being set up . . . PJ2CB visited TI2TG . . . W3JNN has a new 3-element wide-spaced beam 62 feet up. Pushed by the PP 813's it does OK . . . **W8PQQ** offers to QSL to anyone who has missed cards resulting from contacts wiah PX1AR, 3A2AC, 7B4QF or F7AR. . . **WØTKX** is on from new QTH with better antenna possibilities. Bob traded his 4/125A's for a pair of 6146's and now runs 100 watts. . . .**W4AIX** is now going strong in new QTH 2200 ft. up. Smitty is ex W9NRB/9AIX . . . Congrats to George, **KP4BJ**, on arrival of Jr. Op. . .

OQ5CP seeks QSO with North Carolina and Tennessee to complete his WAS. Thanks to W4BCB. . . . OQ5CP may be found on [illegible] kc. . . . W6AIQ lost his beam and other antennas in recent gale . . . .DL1IB is none other than old YM1AA YM1ZO of contest fame. . . . VK4FJ seeks QSL's from VP2LE and VP5BH. . . W7ENW would appreciate a card from old KC6WA . . . Jim, W6RBA, had just about given up hope of a QSL from W6ATB KC6 when he QSO'ed W6ATB AM flying

Honor Roll Endorsements

W1FH	40-252	W1ZL	39-196
G6ZO	40-242	KP4KD	39-196
W3JTC	40-240	GM3CSM	39-188
W6MX	40-235	ZS2AT	39-159
W2AGW	40-234	W0RBA	39-157
W6GDJ	40-226		
DL1FF	40-219	W1HA	37-187
W6TI	40-214	W1BFT	37-162
W7ENW	40-180	OE1FF	37-141
		KG4AF	35-177
W3KIA	39-232		
4X4RE	39-215		
W3DKT	39-209	PHONE ONLY	
W8HFT	39-207	W5ASG	35-165
VK4FJ	39-199	W0NCG	35-149

Last complete HONOR ROLL appeared in the Jan. issue. Next complete HONOR ROLL will appear in the May issue.

4000 ft. over Roanoke, Va. 'Twas the same gentleman and he promised to come through. . . .KH6ARA, ex-W2AIS, now works as Chief Engineer of KHBC, Hilo. See QTH's. . . .W2BBK FP8AK and W2ZBO FP8AQ seek aid for the widow of FP8BX, who passed away last year, and her two wonderful children. No public assistance is available in FP8 land and this family is penniless. Contributions should be sent to FP8AP, P. O. Box 192, St. Pierre and Miquelon, N.A.——Let's do our best to help gang! ! . . .DL1FF seeks confirmations from HL1US, VP2AA, PK4FS, ZD1SS, VP8AD and UA1KEC. . . .VQ4RF offers to replace any missing QSL"s for VQ1RF (Zanzibar) contacts. Send IRC coupon. (Thanks W3LE) . . .GM3CSM seeks QSL from DU1MB. . . .G5PS. Hamish, survived the recent railroad disaster in England with minor bruises and shock. The whole side of his coach was ripped off by the Liverpool-Manchester express. . . .G3EDW is now VQ2W. . . .VE2BV should be on from new QTH by now. . . .G3HS/AP5B will be soon adding a new call. See QTH's. . . .HZ1MY was slated to have spent Xmas with ZS6BW. . . VP8AF leaves So. Orkneys in December ('52) and CE7ZU leaves the Antarctic in Feb. . . AP2R, Roy, is ex-G3GJQ. He will be there two years nd has been active each day around 1230 GMT near 14090. See QTH's . . . W6ITA has been running 15 watts while rebuilding for TVI. . . .From W6TMP we hear that VP8AU and VP8AT, on So. Georgia, request that their QSL's go only via RSGB. . . .For VP8AP, see QTH's for correct address.

We regret to report the passing of W9GA in Chicago. John will be deeply missed.

A recent election of Brazil's LABRE result-d as follows: President—PY1ADA; Vice-President—PY1BBF; Director-Secretary, PY1AXP; Director-Treasurer, PY1ACJ; Director-Communications, PY1ARM; Technical Director, PY1AQM; Director-Military Reserves, PY1AF; Director-General Service, PY1AZA.

160 Meters

A reminder: Trans-Atlantic tests will be held Feb 8th and 22nd 0500/0800 GMT. Overseas listeners please note the following changes in frequencies and power limits which were effective Dec. 15th 1952:

A. Amateurs in the States of Minnesota, WØ, Iowa, WØ, Missouri, WØ, Arkansas, W5, and Louisiana, W5 have moved to the "east coast" frequency bands of 1800/1825 and 1875/1900 KC. Power limits: Daylight 500 watts. Night 200 watts.

B. Amateurs in the States of Florida, Alabama and Mississippi are now permitted nighttime operation with same power limits as above.

C. Amateurs in the states of Texas, Oklahoma and Kansas move to the "east coast" frequencies with a power limit of 200 watts daytime operation and 75 watts at night.

D. Puerto Rico, KP4, and the Virgin Islands, KV4, also move to the 'east coast' frequencies with an increased power input of 500 watts daytime and 200 watts at night.

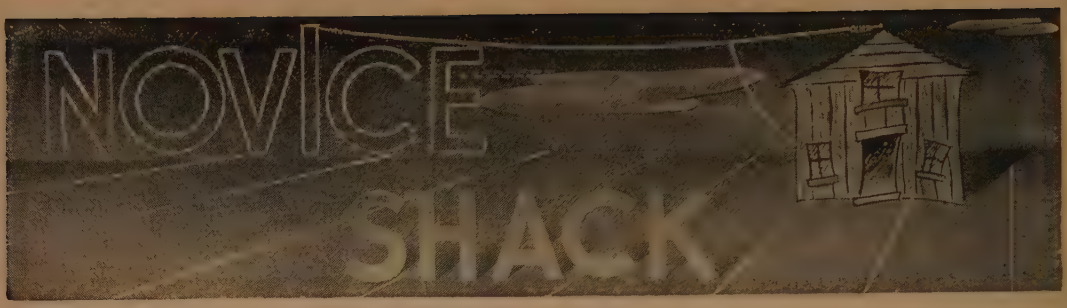
QTH COLUMN

AP2R	ex G3GJQ, Roy, Royal Pakistan Air Force. Via RSGB.
AP5B/G3HS	(New QTH, No call yet) D. T. Boffin, Officers Mess, 3 GHQ Signals Regt. FAYID, M.E.L.F. 17.
FQ8AG and FQ8AS	Box 138 Brazzaville, French Equatoria' Africa.
JA3AB	D. Fujimoto, 339 Shinmachi, Shimoda Chiuri, Kamigyo, Kyoto, Japan
KH6ARA	(New QTH) Pat Miller, Box 942, Hilo, Hawaii.
KL7AMA	Box 2319, Ketchican, Alaska.
R.E.F.	(Reseau des Emetteurs Francais) (New QTH) 3, Avenue Hoche, Paris (8e)
VE2BV	(New QTH) 65 Summerhill Ave., Valois Montreal 33, Canada
VP8AP	John A. Brown, Box 243, Port Stanley Falkland Is. via Montevideo.
VQ2W	584168 A.P.O. Munro, A.J. Officers Mess, (ex G3EDW) RAF Thornhill, Gwelo. Southern Rhodesia.
VQ4HJP	(New QTH) P.O. Box 311, Nairobi, Kenya.
VS1	QSL Bureau P.O. Box 176, Singapore Malaya.
VS7WB	40 Jayaratna Road, Negombo, Ceylon
YI3BU	Via YI3ECU
ZB1CG	RAF Officers Mess, Luqa, Malta.
ZC5VS	T. S. Hugh, Box 136, Sandakan, Br. North Borneo. (or via VS6CG)
ZP9AY	ex ON4AP, Roberto, Capitan Miranda Near- Encarnacion, Paraguay. Via RCP
4UAS	Louis, c/o United Nations, Srinagar, Kashmir. Via India.
5A3TR	John Jacobs Jr. QSL via W6FJB, 353 Dwight Ave., Riverside, Calif.
5A3TU	Gerald Fries, QSL via W6PCS, 2239 Simpson Ave., Fresno, 3, Calif.

Thanks to W3AS, W4COK, W7RT, No. Calif. Bulletin and F.O.C. Bulletin

Photo Courtesy of W1MUN

Snapped at the recent New England DXCC meeti were DX'ers (left to right, top) W1FH, W1JCX and W1NWO. Left to right, sitting, are shown the only two N.E. DXCC XYL's. Dot Evans, W1FTJ, and Lou Littlefield, W1MCW.



Conducted by HERB BRIER, W9EGQ

385 Johnson Street, Gary, Ind.

The *Bud, GM-79 Gimix* pictured on this page is a calibrated absorption wavemeter, so called because its operation depends upon it absorbing a small amount of power from the circuit whose frequency or wavelength is being measured. It consists of a coil, a variable condenser, and a pilot bulb in series. Across this combination is a 1N34 crystal diode and a phone jack, also in series. In addition, there is a toggle switch across part of the coil. In one switch position, the "Gimix" covers the 3.5- and 7-Mc bands. In the other, it covers the 14-, 21-, 27-, and 28-Mc bands.

Bud GM-79 Wavemeter reviewed in this month's column. It sells for approximately nine dollars.

In operation, the coil of the wavemeter is placed near the coil of a tuned circuit carrying radio-frequency power. The "Gimix" variable condenser is then tuned to resonance as indicated by the brightest glow from the pilot bulb. A glance at the dial calibration will then show the output frequency of the circuit being tested.

Always use the minimum coupling that will permit the bulb to glow at resonance. This minimizes the interaction always present when two coupled circuits are tuned to the same frequency.

Using A Wavemeter, Etc.

Probably the most valuable function of a calibrated wavemeter in an amateur station is to assure that the transmitter will actually operate in its prescribed band. Most transmitter tank circuits are capable of being tuned over a wide range of frequencies. The output tank of a typical 3.7-Mc transmitter, for example, usually tunes to 3.7 Mc. with the condenser near maximum capacity and may double or even triple this frequency (second and third harmonics) when set near minimum capacity.

Having been forewarned, you can avoid trouble by always tuning to resonance at the point requiring the most capacity. You could, that is, if you were sure that the stage was actually capable of tuning to 3.7 Mc. Suppose it is a new transmitter, and you could not duplicate the specified coil-condenser combination exactly. A nearly-identical substitute might be just enough different to prevent reaching 3.7 Mc. As a result, the lowest frequency on which you could achieve resonance would be 7.4 Mc.

A pi network is also easy to tune to the wrong harmonic. With one antenna, correct tuning might occur with the input condenser near maximum capacity and the output condenser near minimum. With another antenna, the condenser settings might be reversed. With either, there will probably be another pair of settings which will tune the amplifier and load the antenna—outside the band.

Should you choose the wrong settings, you would undoubtedly discover your error after several hours of futile calling. In a week or so, a letter from the FCC asking you to explain why you were transmitting in a commercial band, would probably prove it.

On the higher frequencies, it is just as easy to tune a frequency multiplier to a lower frequency

(Continued on page 54)

It really doesn't take a transmitter like this to work DX. The rig is W2LCK's, and the operator is KN2CDN, his wife. Power is limited to seventy watts on 3.7 Mc. and ten watts on 145 Mc., when she is operating.

than desired. Almost as if to help me write this review, W9MIF, a local amateur, telephoned me this morning to get on 14-Mc phone and tell W9—, who was calling "CQ 20-meter phone," that he was actually on 7,110 Kc. Unfortunately, the lad was within the 14-Mc skip zone; therefore, W9MIF made a long-distance phone call to give him the information. A fine example of the true Ham spirit, incidentally. It is fairly common, too, to hear stations in the high end of the 14-Mc band blithely calling "CQ ten-meter phone."

A conventional monitor or frequency meter (or a receiver used as a monitor) will seldom give a positive indication that a transmitter stage is tuned to a wrong harmonic. The very strong signal from the transmitter usually generates an audio beat note in them wherever fundamental, harmonic, or image frequencies of the transmitter and monitor coincide. For this reason, it is necessary to have some idea of the proper dial settings to be sure the transmitter is on the desired frequency.

This is where a wavemeter like the "Gimix" shines. Simply couple it loosely to the tank coil and tune it for maximum glow of the indicator bulb. Then refer to the wavemeter calibration to determine the approximate frequency.

Note that the "Gimix" is designed to show in which band your transmitter is emitting power. A frequency meter/monitor should be used to measure the exact frequency.

Other Uses

The "Gimix" may be used as a neutralizing indicator. Also, it will reveal spurious oscillations in a transmitter anywhere within its frequency range. In addition to the pilot-bulb resonance indicator, a low-range milliammeter or microammeter may be plugged into the phone jack for greater sensitivity.

High sensitivity is seldom required in a wavemeter. However, by using the meter and coupling an antenna to the "Gimix" through a few turns of wire wrapped around the coil, the unit becomes a field-strength meter, useful in antenna experiments. Substituting a pair of phones for the meter makes the "Gimix" an audio monitor, useful around a phone station.

There is one absolute must in using a wavemeter around a transmitter. It is usually necessary to put it close to components which have dangerous high voltages on them. Be extremely careful not to touch any of them.

Working DX

At first, I had intended to devote the *Novice Shack* of this "Feature DX Issue" of *CQ* to the same subject. On second thought, I changed my mind. The technique is the same whether you are a Novice or an Extra Class licensee. It might as well be admitted, however, that the Novice is at a disadvantage in working foreign DX.

New Novice Band

Effective February 20th all Novice licensees will be permitted to operate in a new band situated between 7175 and 7200 kc.

This band has been provided by the FCC in order to further encourage Novice operation. Using these frequencies the Novice will be able to make DX contacts and to work over much greater distances. Further details in my next column.

W9EGQ

Probably more than anything else, it takes patience to work new countries and new states. Patience to comb the band listening for them, and once a new one has been found, to call it after its every CQ or signoff with other stations, until you finally work it. Your confirmed DX man thinks nothing of stalking a rare one for months before finally working it.

Letters and General News

Bill, W9PAS, Dyer, Indiana, is the father of a rather unusual radio family. Bill, Jr. WN9RWN, who is 23 years old, is studying radio at Valparaiso Technical Institute, and has a Commercial First Class Telephone

(Continued on page 72)

KN2BHV, New York City, operated by "Fritz" Hess. He is a firm believer in the desirability of home-built transmitters. The SX71 in the picture indicates he favors commercial receivers.

Monitored by LOUISA B. SANDO, W5RZJ

959-C 24th St., Los Alamos, New Mexico

Well, we asked for it—now we're getting it! Here's one response to our December column from an OM in Indiana:

"Dear Miss Dix: (Oops, wrong heading)

"Read your interesting column in Dec. CQ. I always read it even though I'm an OM. The guy in Ohio didn't have an original idea—I've just taken longer to write. I think it is rather a hopeless method, however. I've been on the air for 2½ years, and in that time I've talked to only one YL (a Sister in a Catholic school), and a few XYLs who got interested in Ham radio after meeting their OMs. If there are any unattached YLs on the air, I guess I need a new receiver—I don't hear 'em.

"I had a better idea. (???) Decided to operate 10 meters—cause a little TVI—get acquainted with all the neighbors—maybe find a YL who would get interested in Ham radio. And so? Yep, no TVI. Of course I'm a farmer, and no neighbors with TV sets within half a mile. That's why no TVI, I suppose. I TVI my own set, but that doesn't help!

"Seriously though, I'm 30, blond, 6'2", 155# (yeah, I'm starvin'—I need a good cook), operate all bands occasionally (160 through 2), have mobile station (with car attached). Modern grain farm; no livestock. Need some spare time to operate Ham radio!

"Oh, well, it's a hopeless case—I'll go quietly.

"73—(name furnished on request) "

Any YLs interested in arranging a sked? Let us know and we'll give you his call, or forward mail if you prefer.

YL's Gatherings

The YLs already are planning get-togethers for '53. The New England YLRL luncheon is scheduled for April 11th, while the W9 district girls will hold their second annual YL convention in May in Mishawaka, Ind. More details on both of these later.

The YLs of LARK held their first Christmas party on December 13th at the QTH of W9FZO, with OMs joining them for the occasion. There was square dancing, Ping-pong, a grab bag of radio gadgets, and a late evening supper. Those attending: W9LDC, KXL, FSS, FZO, RQF, LOY, JIO, BCB, MYC, SSK, SJR, MND and SYX. It also was a farewell party for W9KXL, Bobby, whose Navy OM, W9LDC, has been transferred to Norfolk, Va. Two of the YLs also were celebrating receipt of their Advanced Class licenses—W9LOY and MYC.

February brings up the YL-OM Contest, this year's to be the fourth annual such event. The dates are February 28th-March 1st. To make it even more interesting this year, additional cups will be awarded to the high scorers. Here are the details.

4th Annual YL-OM Contest

START: FEBRUARY 28— 6 p.m. EST
END: MARCH 1 —12 midnight EST

ELIGIBILITY: All licensed OMs
YLRL members only eligible to compete

EXCHANGE: QSO number, RS or RST report, State, U. S. possession, VE district or country—except W-VE

SCORING:
A—10 points for each station worked, YL to OM, or OM to YL only, multiplied by number of different States, U.S. possessions, VE districts or countries—except W-VE.
B—Stations and multipliers count once only regardless of band or mode of operation.
C—For phone only or CW only awards: 10 points for each station worked, YL to OM, or OM to YL only, multiplied by number of different States, U.S. possessions, VE districts or countries—except W-VE. Stations and multipliers count once only regardless of frequency band.

OPERATING: Any or all bands may be used.
Phone—Call CQ YL-OM contest
CW—OMs call CQ YLRL
YLs call CQ OMs
YLs on CW are encouraged to operate near the net frequencies of 3610, 7040 and 14,150 kc.

(Continued on page 58)

YL Century Certificate

The YLRL will now award the YL Century Certificate to any amateur in the world who submits confirmation of contacts with stations operated by 100 or more different licensed women amateur radio operators. Space does not permit including the rules at this time; look for them in this column next month.

AWARDS: Highest OM combined score—cup donated by W8UDA, now held by W1BFT.

Highest YL combined score—cup donated by W1BFT, now held by W4SGD.

Highest OM phone to YL phone only*

Highest YL phone to OM phone only*

Highest OM CW to YL CW only*

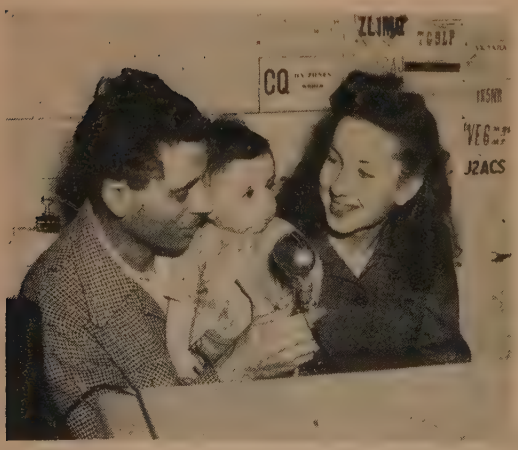
Highest YL CW to OM CW only*

*Cups to be awarded by YLRL

2nd & 3rd place winners in all categories to receive certificates.

The cups are awarded on a yearly basis, with a three-time winner obtaining permanent possession.

LOGS: All participants, whether competing for awards or not, are requested to submit logs, to be postmarked not later than March 7, 1953, to Dorothy K. Wickenhiser, W3JSH, 1112 State Ave., Coraopolis, Pa.



DXer's W5UCQ, Marion Wagner, and her OM W5KUC, give their jr. op a chance at the mike.

Hale W6VWR

It is with heavy heart that we have to record the following. On December 17th, the key of W6VWR, Louise Willomitzer, was stilled forever in this world. Louise, in her early forties, was a victim of cancer and had been very ill for many months. Louise became interested in amateur radio in 1941, via the AWVS classes in New York City where W6NAZ, Lenore, was her instructor, and received her amateur operator's license in 1942. A superior CW operator, she turned from activities that were more important to her personally to help her country by taking a position as code operator at Governor's Island for the Signal Corps. Then, after moving to California after the war, she finally got W6VWR on the air with the help of Clara's (W6TDL) OM. Louise thoroughly enjoyed what time she could spend on 40 meters but soon she accepted the job of secretary-treasurer for YLRL for the 1947-48 term and devoted all of her leisure time and much of her not-to-be-spared time to this work. She spent countless hours organizing the YLRL files, writing hundreds of letters and assisting in the publication of the YL Callbook.

YL Of The Month

Our YL of the Month this time, appropriately enough, is very much of a DXer. Though she has had an amateur license only a little over a year, Marion Wagner, W5UCQ, has worked over 100 countries and is now only awaiting the QSL's to apply for her DXCC. Marion also is deep in DX as secretary of the West Gulf DX Club, having been elected to that post at a meeting of the club last April in Shreveport, La. "And believe it or not," says Marion, "these DX boys really do have the correspondence, too!"

Official publication of the West Gulf DX Club is known as "The DX Bulletin" and Marion and her OM, W5KUC, get this out bi-weekly. It consists mostly of letters from members all over the world and the latest DX information.

Marion received her general class ticket on the 14th of November, 1951, and passed her Advanced Class on the 14th of November, 1952—no grass growing under her feet! She operates on most of the ham bands as both she and her OM like to make use of all their privileges. And with their set-up this is readily possible.

Their station consists of four 1-kw transmitters, each ending up with a pair of 250TH's in the finals, on each of the bands 10 through 80 meters, either phone or CW. All transmitters are controlled from the operating position—Marion's OM is an electronics technician for the Navy and he likes everything operated from one position. Their receivers are an HRO-60 and an HF-10-20 into a Super-Pro. The antennas are three rhombics, five wavelengths to a leg on 20 meters; a 2-element helical beam, and a quarter-wave vertical for 75 meters.

Yes, the Wagner's live on a farm—one they chose so they could put up the antennas they wanted. It's about seven miles north of Honey Grove, Texas. It's also a good place for their jr. op, Joe, aged six, to run off some of his energy.

33 es CUL—*W5RZJ*

NO CLICKS - NO BACKWAVE

KEITH S. WILLIAMS, W6DTY

355 Laurel Street, Oxnard, California

Described in this article are the experiments by W6DTY in overcoming signal feed-through when using the W2RYI method of obtaining "clickless" keying. The author shows that only a slight modification is necessary in the original circuit.—Editor.

In an attempt to find a simple method of keying an 807 buffer stage, a screen keying circuit was finally developed which eliminated clicks completely without the use of click filters. This circuit design also precludes radiation of back-wave during key-up periods, thus minimizing the effects of signal feed-through, which has always been a serious obstacle to the use of screen keying systems.

In *CQ* for May, 1948, Mack Seybold, W2RYI, presented an excellent idea in his article, "Clickless Keying Using VR Tubes." Since that time I have used several variations of his keying system with generally good results. However, the problem of key clicks was still present to some degree or other in all these variations except when keying the screen grid. With this arrangement clicks were non-existent and no filters of any kind are required. However, in spite of the fact that screen voltage is reduced to zero and the screen effectively grounded when the key is up, some small amount of plate current continues to flow and, with continuous excitation to the control grid, a small signal is fed through to the plate tank. This signal is coupled to the following amplifiers and eventually shows up as back-wave, which can make keying difficult to copy.

Shortly after W2RYI's article appeared, a variation of his screen keying circuit was tried (*Fig. 1*). The transmitter in use employed a continuously running oscillator, and the keyed stage was followed by a final power amplifier, biased to cut-off. With this arrangement key clicks were completely eliminated, but the strong back-wave due to signal feed-through was very objectionable, and the screen system was discontinued in favor of cathode keying, which, in spite of the VR-tube screen circuit, again resulted in clicks with the usual filtering difficulties.

Since it has recently become very important to eliminate clicks, not only from the standpoint of pleasing fellow Hams, but in order to simplify TVI reduction, I again went back to screen keying in an attempt to do this, and, at the same time, find a simple means of preventing signal feed-through with key-up. The method which did the best job is shown in the circuit of *Fig. 2*. It is identical with the circuit of *Fig. 1* except for the change of the value and position of one high-value carbon resistor. The present rig consists of a low power oscillator and multiplier stages, running continuously, feeding a screen-keyed 807 which drives a class-B push-pull 812 final amplifier. Smooth keying is obtained, with neither clicks nor back wave. With adequate shielding, the oscillator is barely audible in the station receiver, and is not heard at all at any distance from the station.

Theory

The basic screen keying circuit, utilizing VR tube screen voltage control, is shown in *Fig. 1*. With excitation being continuously supplied to

(*Continued on page 62*)

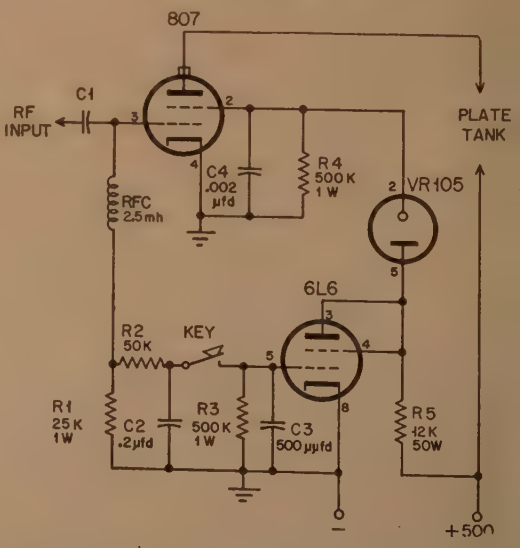


Fig. 1. This is the method of obtaining control-tube bias from the amplifier grid current. The revised circuit appears on page 63.

(from page 60)

the control grid through *C1*, grid current flow through the regular grid bias resistor, *R1*, results in a voltage negative with respect to ground at the grid end of *R1*. When the key is up, the 6L6 control tube grid is at ground potential by way of *R3* and the 6L6 draws heavy current through *R5*, the screen dropping resistor. This results in a voltage at the plate of the 6L6 which is too low to ionize the VR-105. The VR-105, therefore, is the equivalent of an open switch in the 807 screen lead and the screen is at ground potential via *R4*. Plate current in the absence of screen voltage is reduced almost to zero. Now, when the key is closed, the negative bias developed across *R1* by grid current flow is applied to the 6L6 grid, cutting off the 6L6 control tube. The voltage at the 6L6 plate rises above the firing voltage of the VR-105, thus closing the screen circuit. Screen voltage is then normal for the 807 and normal plate current flows. The value of the dropping resistor, *R5*, will be less, of course, than would be required ordinarily, because 105 volts of the necessary drop from full B-plus will appear across the VR tube.

Key clicks, using the circuit of *Fig. 1*, will be completely absent, with no click filter required in the key leads. This is due to the fact that no current is broken by the key. There is also a lag in rise and decay time of applied screen voltage, introduced by the ionization and de-ionization characteristics of the VR gaseous regulator tube.

Now we have eliminated key clicks, and hav a keying system that will follow high speed keyin and the additional virtue of no hazardous voltag at the key itself. However, considerable back wave will be radiated in the key up conditio because some small amount of plate current con tinues to flow, even with the screen at zero poten tial. At W6DTY the 807 plate current under thes conditions was in the neighborhood of five mill amperes, with 500 volts on the plate, and, wit continuous grid excitation, a small signal at th operating frequency was therefore present in th 807 plate tank. This signal was coupled to th grids of the push-pull triode final. Even though i was not sufficient to produce any final grid curren indication it did cause the 812's to draw abou 20 milliamperes of plate current. The signal, ap pearing in the 812 plate tank, was then couple to the antenna, and resulted in a strong back wave when the key was open.

It was desired to retain screen keying because of its ability to completely eliminate clicks, using the VR-tube screen circuit. Something had to be done, however, to prevent radiation of back wave when the key was up. The solution lay in putting negative bias on the screen of the 807, and the most convenient source of bias was furnished by the control tube grid current.

One simple change in the circuit of *Fig. 1* results in a screen keying system that suppresses both clicks and back-wave, and does a beautiful job of both. Referring to *Fig. 2* we will see that *R4* has been increased to one megohm in value

and removed from ground. This resistor is now connected between the control grid side of the key and the 807 screen grid. When the key is up, the VR-tube is de-ionized, cutting off the normal positive screen voltage, and the bias developed across grid resistor *R1* is applied to the 807 screen through *R4*. This negative screen bias cuts off plate current completely so that no signal is present in the 807 plate tank and none is fed through to the antenna to cause a back-wave. When the key is closed the VR-tube fires, positive screen voltage is applied to the 807, and a normal dot or dash is transmitted. The one megohm resistor, *R4*, which may be a half-watt carbon unit, is high enough in value to prevent any appreciable disturbance to normal operating voltages when the key is closed. Voltage distribution is such that there is no danger of shock if you get across the key leads.

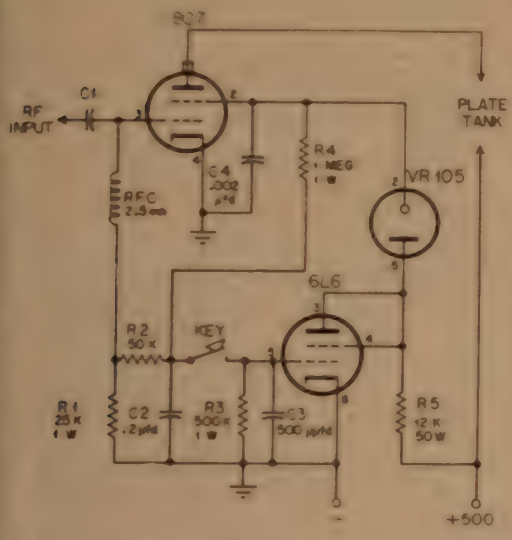


Fig. 2. A modified W2RYI circuit shown above will virtually eliminate both clicks and backwave. The only significant circuit change has been an increase in the value of R4 and its connection to the control grid side of the key.

Operators who like the smooth, chirpless c-w signals that amplifier keying provides, particularly on the 20-, 15- and 10-meter bands, will find the circuit described above to be the answer. Its advantages, again, are: (1) complete elimination of clicks without the necessity for click filters, (2) screen keying without back wave, and, (3) no current at the key contacts, and no shock hazard. This same system could be applied to most of the screen grid tubes ordinarily used as buffer amplifiers in amateur transmitters.[1]

1. Some of the newer tubes, such as the 6146, are not as readily susceptible to screen grid control as some of the older pentodes. This also applies to some extent to the 2E26.—Tech. Ed.

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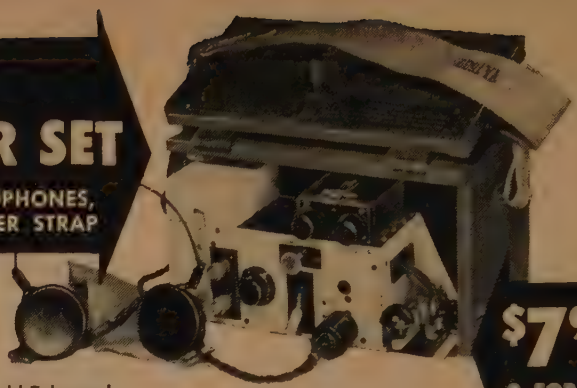

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GUEST EDITORIAL

(from page 9)

"The Detroit Amateur Radio Association in their September blast at the Commission concerning Docket 10287 made this statement, "And every new burst of so-called thought from the FCC is now accompanied by a snide invitation to file comments in five copies."

"Now as a matter of fact the procedural rule 1.764 is not new, it has been on the books for many years. In response to an inquiry from an amateur on this subject, the Commission stated as follows:

'In the first place, Section 1.764 of the Commission's Rules requires that an original and 14 copies of such papers be filed, but permits the Commission to call for a smaller number, or even a larger number of copies, if necessary. In view of the fact that many amateurs must resort to handwritten copy work, the Commission reduced the number of copies in amateur proceedings to five, but in rule-making proceedings pertaining to other radio services, an original and 14 copies is required.

Rule making is a docket procedure requiring two identical docket folders, one kept in a public reference room and available for general inspection, and the other used by Commission personnel engaged in rule work; thus, only three copies remain for distribution to Commissioners of whom there are seven, and who personally pass upon all Notices of Proposed Rule Making and finalization of rules. Often it is necessary for other Commission personnel to examine comments without waiting until the docket becomes available. Accordingly, an original and 14 copies is not excessive.

'Although the Commission is not required to consider any material not submitted in the form and with the number of copies required, in cases where only one letter or copy of letter is filed in a rule-making proceeding, the Commission's staff makes the necessary number of copies. However, the Commission does not have a staff of typists available for that purpose and copy work of this nature done by the staff necessarily diverts man-power which would otherwise be employed, thus retarding the prompt dispatch of Commission business.'

"The point I want to make is, you have a responsibility to respond to rule making and I urge you to do so. Send in your five copies so that your views will be duly considered along with those of other amateurs when the matter is brought to the Commission for final decision."

Present and Prophetic

Lawton - Fort Sill Hamfest

The Lawton-Fort Sill Amateur Radio Club is having their 5th annual banquet and hamfest during February 15, 1953, at 1:30 p.m., at the "Old South Cafeteria", Lawton, Okla. All hams, and their XYL's, are invited to attend. Preregistration will be $1.75 per person or $2.00 at the door. Preregistration and door prizes will be awarded. Send your preregistration to the Lawton-Fort Sill amateur club, P.O. Box 892, Lawton, Okla.

RV2 STORY

(from page 22)

watt amateur transmitters and two 200-watt government ones. Power is supplied by five-kilowatt generators. My 8JK amateur antenna is fed with 115-foot feeders, because I must keep it clear of the government antennas.

DX is not as good here as one might expect. Only South American stations come in really well. I am always interested in working France and French North Africa, but conditions seldom permit it. Part of the trouble is probably the present stage of the sunspot cycle. At any rate, FO8AD is always looking for contacts with old or new friends.

Two old friends I must mention are Don Carlos, HC1FG, Quito, and Ike, W9RUK, Chicago. I have had many wonderful contacts with them both. Ike did an excellent bit of emergency work one night by relaying an urgent message to a hospital in France for me.

Some day, I hope to visit many of my amateur friends throughout the world. Until then FO8AD is always QRV to QSO you.

VK's POINT OF VIEW

(from page 44)

However, at the present time, with the efficient use of good equipment, we are able to take more advantage of the ever-changing band conditions, instead of being victimized by them.

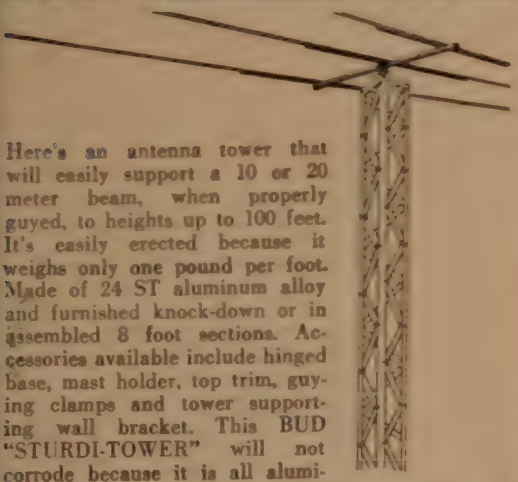
Nevertheless, keep in mind that Australia is a big place and don't expect to work every district during one opening. On the other side of the ledger

The Newcomer's Byway

"The Dispatcher"

Here's a Controlled Reluctance microphone assembly designed to handle the most severe requirements of radio amateur rigs. The "Dispatcher" is supplied with two-conductor shielded cable, and it's wired to operate both microphone and relay circuits. This field-proved unit is used extensively in police, railroad, airport, and all emergency communications work where dependability is vital. Of special interest to "Hams" is the large, easy-to-use grip-bar and positive action of the heavy-duty switch. Firm downward pressure on the grip-bar locks the switch—so you can "yackety-yack" all night without lifting a finger! The "Dispatcher" is immune to heat and humidity and will stand up under rough usage. It is manufactured by Shure Brothers, Inc., 225 West Huron Street, Chicago 10, Illinois. It's a high-impedance unit with a high output level of minus 52.5 db. Lists at $35.00. See the "Dispatcher" at your Distributor for further details, or write Shure Brothers, Inc., 225 West Huron Street, Chicago 10, Illinois.

BUD Antenna Tower



Here's an antenna tower that will easily support a 10 or 20 meter beam, when properly guyed, to heights up to 100 feet. It's easily erected because it weighs only one pound per foot. Made of 24 ST aluminum alloy and furnished knock-down or in assembled 8 foot sections. Accessories available include hinged base, mast holder, top trim, guying clamps and tower supporting wall bracket. This BUD "STURDI-TOWER" will not corrode because it is all aluminum including the hardware. The BUD "STURDI-TOWER" will give a lifetime of service at a moderate cost. See it at your BUD distributor today or write for literature.

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Next Month — —

When you see this cover keep in mind that CQ will contain as its feature article a full description on how to use one of the most important receiver developments in the post-war era.

The Collins Mechanical I-F Filter

The Technical Editor of CQ, W2PAU has designed two adapters using the Collings Filter that enables it to be inserted in many 455 kc. i-f communications type receivers to afford an unbelieveable improvement in selectivity.

Also in this issue, W4OLL will introduce the first part of his valuable series of articles on single-sideband operation. This series will summarize the present state of the SSB art. It will include (in this part) the reasons "why" so many Hams are switching to SSB. This, and latter installments, will supply all of the necessary details for getting on the air.

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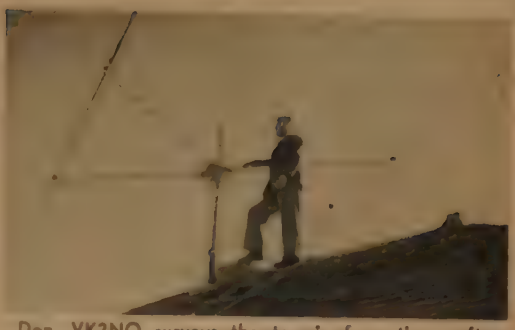
we know that having a rare DX call in the Southern hemisphere does not automatically indicate that you can always be heard. Witness the visit of WØEIA to VS5 and his reported disappointment with results. [illegible] VK1 and CQ in Asia

Heard Island

They tell me that a standing joke in the U. S. A. is the fellow that got a "heard card from Heard Island!" Well, be that as it may, a station in Zone 39 was of great interest around the world. VK2PG was there as VK1PG. John reports that the island is entirely volcanic and has no natural vegetation. The island's scientific staff is changed each year and generally have no outside contact with the rest of the world except via radio. During his sojourn, John had VK1YG and VK1HV as company; together they made about 500 contacts with VK1PG working 75 countries.

Radio reception at Heard Island is severely influenced by magnetic storms and auroral activity. At times there existed a complete radio "blackout,"



Don, VK2NO surveys the terrain from the rooftop of VK2CM. The beam is a two-element rotary of the G8PO type which is somewhat like the 8JK except that it has electrically reversible phased elements for a controllable front-to-back ratio.

varying from 2 to 10 days in duration. Amateur activity was limited to about 3 hours per day, the remainder being occupied with commercial and official traffic.

The power at Heard Island was 25 watts, and

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40 meters was not tried due to poor conditions. No signals were heard on 10 meters. During the period of April to September, the VK, ZS and W signals were the main stations heard, from 0200 until 1600 GMT. From October through March the Europeans were heard. DX activity on 20 meters peaked in November and December, with the band staying open almost 24 hours per day. South America was always difficult to contact.

One complaint that the Australian Ham has had, is that should a license be terminated, especially by a fellow Ham joining the "silent keys," the call was soon re-issued. Consequently, many DX calls are now held by others, in many cases amateurs quite new to the game. We have frequently noted that overseas stations are unaware that their DX pal in Australia has passed on, and are either offended or embarrassed by the actions of the new party holding the call. Through the efforts of the W.I.A., this situation is gradually being improved.

This is VK1PG at Heard Island, Antarctica 1950. The rig was a pair of 807s modulated with 6L6s. The receiver was an Eddystone (British) 680.

I would also like to point out that Australian Hams are not permitted to handle third party traffic. Many of our friends in U.S.A., who were out here during the war, have been disappointed when they found we would not handle their messages to VK-acquaintances. Sorry, but regulations are regulations and we want to keep our hobby going.

DX-ers in Australia, like most countries, can be divided into a number of classes or types. There are those who like to work as many countries as possible on low power and a simple antenna; those who try to work as many with higher power and bigger antennas; the certificate hunter; or the one like VK4EL who runs a marathon sked with a particular DX station, in this case G5ZA (600 QSOs). Finally, we come down to the "prowler" (like VK2QL) who listens around the bands for something tasty or an old DX pal, often without using the transmitter. It's amazing how dead a band can seem until something good in the way of DX shows up. Maybe I'll see you!

Amateur Teletype Comes of Age

WAYNE GREEN, W2NSD
1379 East 15th Street
Brooklyn 30, New York

It was a merry Christmas indeed for those interested in teletype. The new FCC regulations culminated two years of waiting, hoping, planning, and construction. Up to now the active teletype stations have been stuck way up on two meters and the stations outside of the big cities have either had to interest another local amateur or else sit and wait for new legislation. No wonder the excitement is so high.

The new regulations (amended section 12.82 [a]) say, in essence, that the RTTY stations must sign their call letters both in CW and RTTY. This will make it possible for all listening to effortlessly identify the station as amateur, although it will raise hob with the printers, until we can put in some circuits to disable the machines while c.w. is being sent or received. This will probably be only a temporary difficulty, since the FCC states quite clearly that these rules are open for revision if they do not work out right.

Section 12.111 has been amended to allow FSK (type F-1 emission) in the bands: 3500-3800 kc; 7000-7200 kc; 14000-14200 kc; and 14300-14350 kc.

The Amateur Radio Teletype Society has tentatively decided upon the following calling frequencies for the new bands: 3620 kc., 7140 kc., and 14340 kc. The mark frequency will be considered the channel frequency and the space signal will be 850 cycles lower. Another recommendation is that we adopt the use of the letters, "RY" when calling "CQ"; "RY" is much more recognizable, in code, than "CQ." Since many of the machines do not unshift on space please remember to send a "LTRS" pulse whenever shifting to lower case.

The FCC went into rather exacting detail as to the standards to be used for RTTY transmission. Fortunately these standards are exactly those that have been in use, and will, therefore, be a matter of little concern except to those who might wish to do some experimenting with narrower frequency shifts or some such. The new section 12.107 sets the deviation for both FSK and AFSK at 850 cycles, with a maximum of plus or minus 50 cycles. Our present, self adopted, tolerance of plus or minus ten cycles is far more satisfactory and will no doubt remain the standard. This new section also sets a high limit on the audio tones used with AFSK of 3000 cycles. This permits us to keep the present tones of 2125 and 2975 cycles.

All in all, though there are some parts of the rules that will cause annoyance, most of them are just what the doctor ordered. They go into effect February 20, 1953, so get that diode modulator into the VFO and clean up the clicks from the printer.

40-METER BEAM

(from page 27)

in the evening, obviously a help in copying DX.

When conditions are good, it is not unusual to raise a European station around midnight, exchange reports with him, and be kept busy for the next couple of hours answering calls from other Europeans wishing reports. Stations running as low as five watts input have been worked. I am often accused of being a bootlegger, located somewhere in Europe, "because no W, let alone a W9, could be that loud."

A number of RST559 reports have been received from Australia the long way around at 4:00 p.m. The beam permitted me to run up the highest W9 score on 7 mc. in the 1950 and the 1951 *CQ World-Wide DX Contests. (Hal was modest. His score in the 1951 contest was the highest W9 score on all bands*—Editor.)

In operation, if the coupling to the final amplifier is adjusted for an input of 750 watts at 7000 kc., it increases to a kilowatt at 7100 kc. and starts dropping off again toward 7200 kc. Over this range of frequencies, it is unnecessary to retune the final amplifier to retain resonance. This is probably because the various reactances introduced into the tank circuit over this range of frequencies balance out. Between 7200 and 7300 kc., however, even a small shift of frequency requires retuning the final amplifier.

The parasitic element acts as a director between 7000 and 7100 kc., and as reflector between 7200 and 7300 kc.

All-in-all, I would recommend a similar 7-Mc. array as an excellent DX antenna for anyone who has the room for it. Constructional difficulties are not excessive for the results obtained.

NOVICE SHACK

(from page 54)

Institute, and has a commercial First Class Telephone license. Jack, 21, is W9PFZ; Paul, 17, is W9PKG; Mike, 15, is WN9TNI; Richard (about 13) is ready to take his Novice and Technician examinations. Penny, 10, is studying for hers. Mom, Revelda, studies spasmodically for her license, but she believes one of the family should retain a slight hold on her sanity. Oh yes, Gael, 5, recognizes CQ and a few other code combinations.

All this concentrated radio activity takes place on a farm upon which only Hams and antennas are raised. At last count, there were seven antennas covering every band from 1.8 to 148 Mc. Receivers include two HRO's and two BC-348's, among others. Transmitters? You name it; they probably have something similar. To summon the clan from the remote areas of the farm, there is an automobile horn connected to a telegraph key at the house. Seeing this gadget work amazes visitors to this unusual home more than anything else.

Well I did it again! "Dear Herb, I sure do thank you for putting my letter in the **Novice Shack.** Just wanted to inform you that I am a BOY, not a GIRL"—Penny (boy), **WN4WYA**

Fritz, **KN2BHV**, and I have been discussing the merits of kits versus building a rig from the ground up. He says, "I still think it is infinitely better to build a rig from scratch. Your comment on cutting holes in sheet iron is well taken here, 'cause I've never used

steel chassis. Aluminum is my building material. My present 80-meter transmitter was built on a 7x13x3 inch chassis, with all holes, including tube-sockets, meter holes (phew!) and other large holes made with a hand drill and a pocket knife! The training one receives doing this manual labor is, I think, very valuable.

"Too, by shopping around, you can save quite a bit on a part here and there. (Not so easy when you have to buy all your parts by mail—Herb). Two days ago I started construction on a 145-Mc transmitter ending up in an 832A, and using Rothman modulation. 73"—Fritz, WN9HHN.

WN9LJQ speaks his piece very forcibly. "Dear Herb, I am slightly hot under the collar about one of the letters in the **Novice Shack** that runs old-time Hams off the ground. I don't know about other Novices, but fifty to seventy-five per cent of my contacts are with the 'big boys.' I enjoy all of them. It is surprising how they will help you all they can. I know I would not be a Ham if it wasn't for the assistance of WOCIH, one of the old timers. Long may they live!"—George, WN9LJQ.

"Dear Herb, Would you please print this and get me some help learning the code? I am thirteen years old"—Davis Wilson Murphy, 417 Oak St., Greenville, Illinois.

W8TMZ writes, "Dear Herb, I now have my General Class license, a new rig, with a 6146 final running forty watts and a BC-342 receiver. Jay, WN8URW, who is twelve years old, lives next door to me. Keep up the good work in the Novice Shack. 73"—Jack, W8TMZ.

"Dear Herb, I would like to back up Richie, WN4WJD, 100 per cent. I think that the S-38 and the SW-54 just can't be beat for the money. Furthermore, I know several fellows with more expensive receivers who do not know how to use them. Therefore, we fellows with cheap receivers often get more out of them than those with expensive ones.

"I have twenty-six states confirmed, including California, on the 3.7-Mc band. So if that is not a nice record for an SS38 receiver, a ten-watt, 6AG7 transmitter, and a ¼-wave antenna, I don't know what is" Ron, **WN8KYD**. "P.S. I am seventeen and a Senior in High School."

"Dear Herb, I am thirteen years old. I need some help in becoming a Ham. Can you print my plea?"—Harry Bluestein, 288 So. Long Beach Ave., Freeport N. Y.

"Moose," **WN9SWM**, conducts the Indiana Novice Net on 3715-3720 Kc. every morning at 6:00 AM, CST. Moose is a Junior in high school. His 6L6 running at twenty watts has worked thirty-five states, and VE2, 3, and 4. He welcomes visitors to his fine backyard shack. . . .Bob, **WN9SWC**, runs seventy-five watts and has fifteen states. . . .Ray, **WN9SYG**, is sixteen, runs nine watts and has worked ten states. . . Wally, **WN9NPJ**, is fourteen, runs forty watts, and has five states. . . . Harold, **WN9NQX**, is the newest of Martinsville, Indiana gang. He operates WN9SWM. All these lads have one thing in common. They want to work more states.

WN9MMM writes, "Dear Herb, I got my license exactly thirty days after taking my examination. Your review of the **Philmore** Novice Kit transmitter sold me on it. My first contact was with W5UJW/O. We talked for two hours"—Dub.

WN5WUL writes, "I whole-heartedly agree with Richie, WN4WJD, about the so-called cheap receiver. In a month and a half, I have worked fifteen states with

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my S38C and seventy-five watts input. I can't see v anyone can complain about a receiver like that"—To

WN6TKD says, "Dear Herb, I built the Philm Novice Kit Transmitter after reading the Aug Novice Shack and it works fine. My receiver is hor made, and it isn't so hot, but I hope to have a bet one soon."—Ron.

Send information on your high school or junior h school radio club to Willis C. Brown, Room 3643, U. Office of Education, Washington 25, D. C., to be cluded in a list being compiled. Include name of and school, address, name of president, number club, special exhibits, demonstration, and other p tinent information. In return, you will receive a c of the list to aid you in contacting other similar clu

See you next month. 73, Herb, W9EGQ

Gs' POINT OF VIEW

(from page 33)

same DX as you were!)

Certain characters established reputations as 8 meter stalwarts and proceeded to make WAC both on phone and CW. Mention the band almo anywhere in the world, and the call-signs of faithful few stations will spring to mind. The should really be a club for the 80-meter fancier because, once bitten, they stay bitten—and hard!

The QRM Band

Time was when *Forty* was one of our best D bands, and, of course, it still could be. But no Ham can imagine what the band is like for us wit out taking a trip to Europe and listening for hi self. Political reasons were responsible for handi out 7200-7300 kc. to broadcasting soon after t war; later on, the 7100-7200 section became fill with them. Nowadays, the only section of the ba usable for DX work in Europe is the bottom e —roughly 7000-7050 kc. And even inside this minu slice we have pirate broadcasters, jammers, jingl bells and heaps of miscellaneous seaweed that be gars description.

Add to these sad facts the further one that ce tain European countries still tolerate amateurs w regard a wobbly T4 tone, complete with whiske chirp and key-clicks, as one of the latest scienti achievements of the century—and spare a sigh sympathy for us. (Some of the above-mention transmissions have grid modulation applied to the as well. They are then far more effective than t current Russian jammers.)

Notwithstanding all this, one or two G's ha worked more than 100 countries on *Forty*, and o outstanding short-wave listener has heard 178 the band! Real DX work is best carried out night (between midnight and 0500 for preference but there is a good patch between 1700 and 19 GMT, when the Far East and Australasia oft break through. The European QRM is still in f cry, though, and selective eardrums with built crystal filter and phasing control are an essential.

A very interesting development of this band w

opened up by persistence on the part of some W6's and some G's, who were convinced that long-way-round working should be possible at about 1430 GMT during the months of December, January and February. It was tried out in 1950, and it worked: excellent signals came over here from W6DFY, 6GAL, 6EBG, 6FSJ, 6OEG, 6MHB, 7OY and 7VY—to mention the first to arrive in the winter of 1950-51. Receiving these signals through European QRM in mid-afternoon took some doing, but it was possible, and several good QSO's were made. They were definitely over the long path, with no other DX coming in but an occasional VS2 or VS6.

At about the same time of year the ZL's were outstanding round about 0800-0900 GMT, the VK's showing a preference for the early evenings. All these events go to show what a wonderful band *Forty* could be if someone had the necessary powers to sweep away the garbage. Meanwhile many of us over here use it as much as we can, especially during the hours when skip is long and the local QRM not too hot; hence many hundreds of fine contacts with East Coast W's, KP4, KV4 and so on round about the midnight hour.

If you have had the patience to read all the foregoing, you will probably have the extra amount to spare for us when your calls go unanswered; it isn't the fault of your rig, but merely the unfair opposition you have to contend with on this side. We are told that your own QRM on *Forty* is just nothing to it!

The Solar Cycle

The past five years have given us a chance to observe the sunspot cycle in action in a more complete way than we ever had before the war. In the 30's, as fast as conditions fell off someone produced a better receiver, better transmitter, better antenna system, and so offset the loss of DX. But we are not in a position to advance so quickly now, and huge numbers of hams are doubtless using the same gear now as they were in the peak year of 1947. So we have gone round half the cycle, from the days of easy DX on *Ten* to the days of fighting for it on all bands and nothing below *Forty* at night!

This has shown up the value (or, for us, *potential* value) of the LF bands, and *Forty* and *Eighty* have done much to keep the DX tradition fully alive through the lean years. Even the Ham who likes to do things the hard way——and most genuine Hams do!—has not been capable of maintaining DX work on a band as dead as *Ten;* however, he has been able to make some almost impossible DX conquest on *Forty* and *Eighty.*

The "Top Band"

One-sixty is known with some affection as "the Top Band" to its many devotees over here, where we have the use of 1715-2000 kc. with a maximum input of *ten watts.* So it is an ideal beginners'

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band, but also an ideal rag-chewing ground for O Timers and beginners alike. After dark our watts will cover the whole of the U.K. with eas and also—surprisingly—much greater distance Stations consistently worked from here with watts and a reasonable antenna include OH3NY OH7OH, ZC4's, CN2, many OK's and, former OZ's (not now licensed for this band).

The Transatlantic Tests organised by the *Sho Wave Magazine* in 1950, 1951 and again this yea produced many contacts with East Coast W's, i spite of our flea-power limitations, although it wa obvious that only those with real antenna system could hope to succeed. (GW3ZV had up 1800 fee of wire for some of these tests!) W9's were hear consistently; KV4AA got across on quite a fe occasions; and even HC1JW was heard severa times. The first logging of WØ on the band wa carried off by SWL G. C. Allen, an Old Timer a the game, who heard WØTQD and had confirma tion in due course.

The ultimate DX was, of course, finally achieve after much careful planning between GW3ZV an ZL1AH. This necessitated careful choice of date times and frequencies, and was one of those man things that no one but an amateur would have a tempted—because anyone else would have know that it was impossible. It came off, with full credi due to both stations, and surely represents the ulti mate in DX working—right round the world o One-Sixty.

The Present Day

So we arrived at the state of affairs in which n one could find any new DX to work unless some one went some place and provided a signal, and s the DX-pedition craze was born. It is hard to sa who started the fashion, but one of the very earl ones on this side was 3A2AB, operated in Monac by DL4FS. Since then Monaco has become almos commonplace, but at that time it had never bee worked legitimately by anyone in the world.

W6SAI's work at FP8AC also caused a terrifi stir over here, and the concerted effort at 7B4QI was another one that set the bands off. Since the we have had so many that there is no point in list ing them all—EA9DC, VS5ELA, FL8MY HC8GRC and the like were all world-famous fo a brief period, and introduced new countries to th amateur world which otherwise would have re mained blanks on everyone's list.

Unfortunately the appearance of one of these rar ones brings out all that is worst in human natur (and that's saying plenty). Operating becomes cha otic from the very first CQ, and the wolf-pac crowds in ever closer. It is then entirely up to th DX man himself to control the riots; he is the su preme master of the situation, if only he has th know-how and the operative ability. Some of ther have, fortunately; others, however, have been quit

incapable of handling things and have even packed up in disgust.

So may we appeal to anyone thinking of a DX-pedition to ask himself "Can I crack the whip and make the boys behave?" If the answer is *No*, he should take someone with him who knows the answers. A few simple rules are all that are necessary—Don't call on frequency; don't call until you hear an SK (and that implies that the DX man mustn't send SK until he really means it—some of them have been shocking in this respect); call on any frequency that may be specified——but you know them all.

One of the snags over here, is that even if the DX says, slowly and clearly, "Do *not* call on this frequency; call on 14025 to 14050 and listen on this frequency," or something like that, swarms of Lids with the wobbly T4 already mentioned will sit right on his frequency and call blindly. Some of them may still be doing it two hours after he has gone to bed. No one can really cope with these manifestations, and they are one of the reasons why we don't *all* work every new piece of DX that shows up. Four or five European countries are notorious for this sort of madness.

What we really want is a university course for would-be skippers of DX-peditions, including some rapid-QSY technique to dodge these blind callers; however, we're not giving all the possible tricks away in case we ever manage to go on one of these cruises ourselves. (Sufficient to say that we would have the boys hopping around, but no *permanent* QRM!)

The Future?

Where do we go from here? There are not many countries left for the top-scorers to work, and no one thinks that inter-planetary DX will become the rage in our lifetime. Some would say "Why worry about country-chasing anyway? If a G can make his signals hit New Zealand, California and Chile he knows they cover the world, so why worry about all the other ports of call?" Probably the answer is just that any hobby needs some competitive aspect to inject the necessary life to keep it progressive. Many fine Hams are not interested in contests, country-chasing or anything of the sort; yet, the fact remains that many *are*. Those who indulge in constant competition, whether friendly or cut-throat, are largely responsible for the development of communication techniques, snappier operating, cleaner signals and all the rest.

Let us always remember, though, that ham radio is a fine hobby but a very bad master. The essential thing about a hobby is that one can spend just as much, or as little, time and money on it as one wishes to, and if you don't want to get up early in the morning, no one compels you to do it until the hobby has become an obsession and therefore the master.

(And now for a couple of nights with some "wakey-wakey pills" to find those new ones on *Forty*!)

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Advertising in this section must pertain to amateur radio activities. Rates 25c per word per insertion for commercial advertisements. 5c per word for non-commercial advertisements by bona fide amateurs. Remittances in full must accompany copy. Phone orders not accepted. No agency or term or cash discounts allowed. No display or special typographical ad setups allowed. "CQ" does not guarantee any product or service advertised in the Classified Section. Closing date for ads is the 25th of the 2nd month preceding publication date.

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RADIO AMATEUR and commercial license preparation. International morse code transcribed on magnetic tapes, recording wire and long playng microgroove discs. Disc-A-Method Recording Company, 317 E. 48 St., N.Y.C.

QSL's. TOP quality at fair prices. Samples? Write W9BHV QSL Factory, 855 Burlington, Frankfort, Ind.

BC610 parts wanted. Give price and condition first letter. L I Radio Company, Box 474, Montrose, Pa.

VOLT-OHM-MILLIAMMETERS: Pocket Size AC/DC Ranges 750 v., 150 v. and 15 v.; 150 ma. and megohm—$8.75. W2OXR, R. Gross, 11 Belmont Terrace, Staten Island, 1, New York.

DON'T FAIL! Use the time-tested "Surecheck Test." Novice, $1.50; General, $1.75. Amateur extra available soon. Amateur Radio Supply, 1013-7th Ave., Worthington, Minn.

RADIOMEN—Tour the country. Complete trailer radio shop, best instruments, living quarters. First $1200 takes. Reason—sickness. Fred Lines, W6NRV, 2826 Waverly Drive, Los Angeles 39, Calif.

QSLs—100 2-colors $2.00, 3-colors $3.00. Remit with order. Processed same day. CPS, Box 157, Bladenburg, Maryland.

SCR 522, original condition. Will sell or swap. How much or what have you? W2KNQ, R. D., Hewitt, N. J.

QSL CARDS?? Unbeatable variety, samples 25c. Sackers, W8DED, Holland, Michigan.

WANTED: Navy Selsyns. 1G, 1F, 1CT, 1DG, 5D, 5DG, 5F, 5CT, 6G, 7G, etc. Top prices paid. Electro Sales Co., Inc., 110 Pearl Street, Boston 10, Mass.

TWO USED TELEVISION RECEIVERS, 7" $35, 10" $50. Ideal TVI monitor, many other uses around shack. W4API, 1420 South Randolph, Arlington, Virginia.

WANTED: APR-4, other APR-, APS-, APT; ARC-1, ARC-3, ART-13, BC-348, BC-221 etc.; TS-12, 13, 35, 120, 146, 155, 178, 174, 175, 323, other "TS-"; particularly Microwave equipment, Spectrum Analyzers; G-R, Ferris, L&N; 723A/B, 3C22, all tubes; manuals, meters, parts, cable. Littell, Farhills Box 26, Dayton 9, Ohio.

QSLs! Interesting Samples 10c. Tooker Press, Lakehurst, N. J.

BARGAINS: EXTRA SPECIAL: Motorola P-69-13 mobile receivers $29.50; Globe King $315.00; HT-9 $199.00; HRO-50 $275.00; Lysco 600 $109.00; HRO-7 $199.00; Collins 75A1 $275.00; HRO-5T 175.00; SX-71 $159.00; SX-42 $189.50; SX-43 $129.00; HRO-Senior $119.50; RME 2-11 $99.50 RME-45 $99.00; Meissner EX Shifter $59.00; S-40A or SX-16 $69.50; VHF-152 $59.00; HF 10-20 $59.00; Globe Trotter $79.50; Meissner Signal Calibrators $24.95; MB611 mobile transmitters $19.95; 90800 exciter $29.50; RCA Chanalyst $69.50; XE-10 $14.95; Gonset 10-11 Converter $19.95; and many others. Large stock trade-ins: Free Trial. Terms financed by Leo, WØGFQ. Write for catalog and best deal to World Radio Labs., Council Bluffs, Iowa.

SELL—Hammarlund Super-Pro SP-400-SX receiver. Excellent condition. Power supply and speaker. $250. F.O.B. Ray Warner, W7JU, 539 Birch St, Boulder City, Nevada.

SELL—Collins 231-B transmitter. Complete cool KW 1.75 mc to 21 mc. Bandswitching or autotune. CW and AM phone. New spare tubes included. $400. Worth more in components. No crating. Bring truck or trailer. Ray Warner, W7JU, 539 Birch St., Boulder City, Nev